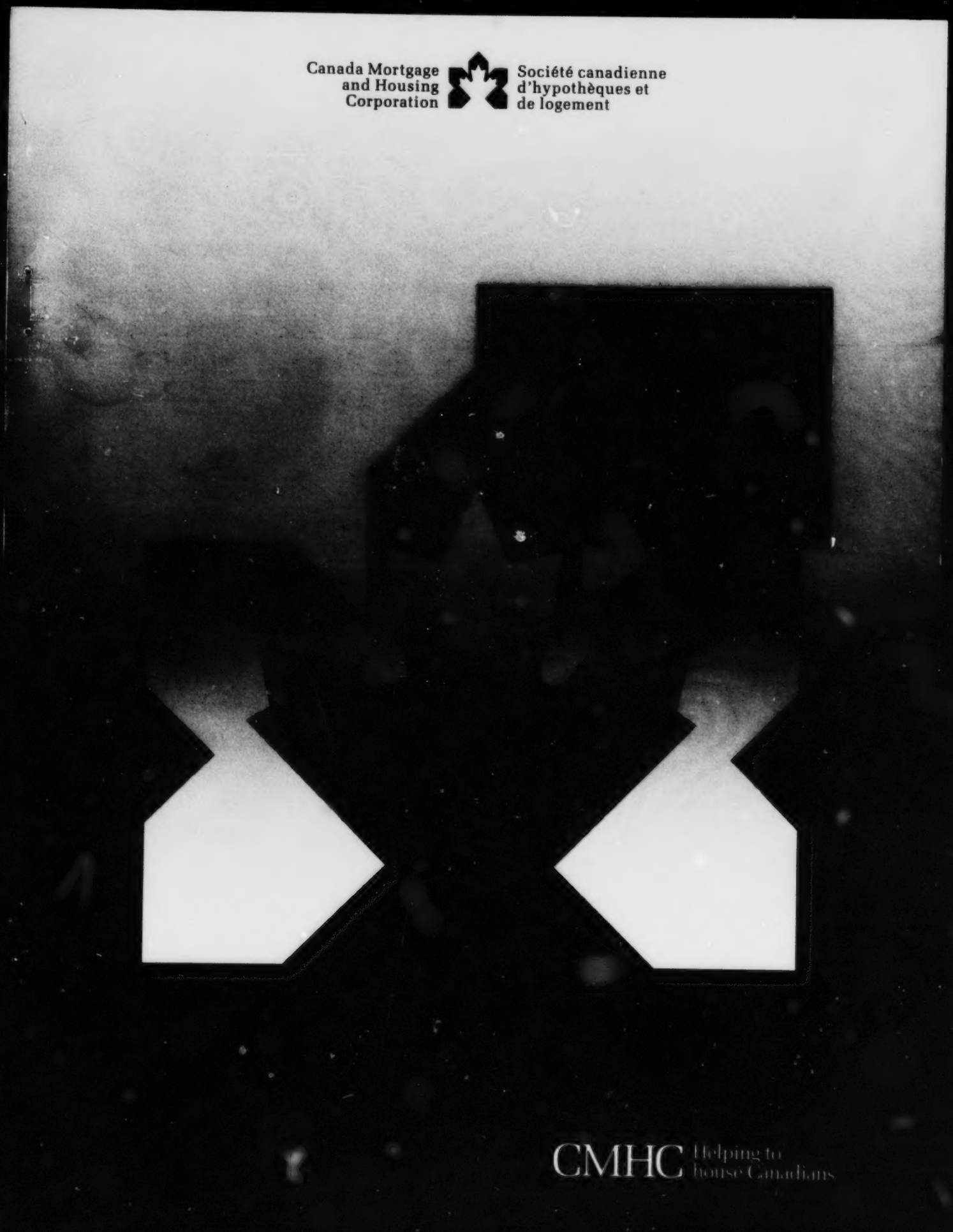
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FACTORS IN RESIDENTIAL VANDALISM

David L. Wiesenthal

York University

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SUMMARY OF THE REPORT ON

FACTORS IN RESIDENTIAL VANDALISM

The study set out to test several current theories on environmental and social deterrents to urban vandalism. In parallel, it would also test the validity of a microcomputer simulation as a tool for determining the propensity to vandalize a planned building.

To test current theories, the author formulated seven hypotheses, each based on a current theory, about the expected frequency of vandalism when certain conditions prevailed.

It was postulated that vandalism will be higher when there is:

N	1.	Low territoriality and minimal personalization
N	2.	Poor maintenance
N	3.	Low potential for neighbourly surveillance
N	4.	Little presence of physical or symbolic cues
Y	5.	Proximity to parks, schools, stores
?	6.	Presence of large number of teenagers
N	7.	Lack of social cohesion

These hypotheses were subsequently checked against survey data gathered from three distinct districts of Toronto. Most were disproved, one was confirmed (No. 5 above) and one (6) could neither be confirmed or rejected.

These findings, countering accepted theories, would have been very significant if the data on which they were were based was sound. The admission that the collected data were flawed, makes the research findings questionable, if not invalid.

The parallel study, confirmed the validity of the microcomputer as a tool for predicting vandal behaviour by asserting hypotheses one and two of the first study which it found unsupportable. The value of the simulation as a predictive tool diminishes considerably when the cardinal hypothesis of the research is accepted, that new and well maintained buildings will not attract vandalism. All buildings to be tested through the computer will be at the design stage, generally portraying the building's best, idealized image.

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The author wishes to dedicate the report to the memory of Carole Méthot.

Executive Summary

Vandalism is felt to be a major problem in Canadian cities, with survey data indicating that the public's perception is one of increasing vandalism. This report examines various conceptual models of vandalism and reviews the literature on vandalism emphasizing residential vandalism in particular. The literature review has covered the following topic areas: defensible space, territoriality, aesthetic theory, and de-opportunizing design concepts.

Two research projects were performed to examine the environmental and social variables that might predict residential vandalism. In Study One, a field study was performed comparing single family houses that had either suffered vandalism or had not. In Study Two, a simulation methodology was examined to test the utility of this strategy in the prediction of residential vandalism.

Study One

In this research a variety of Toronto neighbourhoods were examined in a door-to-door survey to compare vandalized houses with comparable houses in the same area that had not been vandalized. Only single family residences were studied. The Neighbourhood Attributes Scale was constructed to test seven hypotheses relating vandalism to: (a) territorial behaviour and personalization; (b) dwelling maintenance; (c) neighbourly surveillance opportunity; (d) presence of physical and symbolic

cues; (e) multi-use neighbourhoods with a mix of shops and homes; (f) the number of children in the area; (g) the social cohesion in the neighbourhood. While some previous findings were replicated, the data did not strongly support the hypotheses. Methodological limitations of the study were discussed in detail and recommendations were offerred for future research in this area.

Study Two

This research examined the effectiveness of an environmental simulation of residential vandalism. A set of images of the same house varying in territorial markers and existing vandalism damage were produced on a Macintosh microcomputer to study the desire of high school students to engage in various forms of vandalism. The first hypothesis examined the ability of a dwelling with a strong sense of territoriality and personalizing features in resisting vandalism. The second hypothesis explored the effects of a house that was poorly maintained and suffering from existing vandalism in provoking further acts of vandalism. The third hypothesis examined predictions derived from aesthetic theory to determine what selected features of the dwelling would provoke acts of vandalism.

The results indicated a sex difference in the desire to commit acts of vandalism, with males being more prone to engage in acts of vandalism. The results also demonstrated that a house which is badly damaged will suffer further damage. Subjects indicated

a desire to damage a "No Trespassing" sign, break windows, and add to already existing graffiti.

The present data supports the ecological validity of the simulations as they apply to vandalism research. The present data indicates that vandalism is not a random, unpredictable activity, but rather follows a deterimined, predictable pattern. This research demonstrated that environmental simulations performed on an inexpensive microcomputer using commercially available software can serve to test a variety of architectural and landscape designs.

Relation to Existing Research Literature

Definition of Vandalism

As S. Cohen (1973a) has pointed out, vandalism is neither a precise behavioural description, nor a specific legal category, but rather a social label referring to certain types of behaviour under certain conditions. The majority of the vandalism literature has described vandalism as behaviour occurring in a narrow range of settings: communal sites, apartment complexes, schools, recreational facilities and mass transit settings (Wiesenthal, 1984). The Report of the Task Force on Vandalism chose to define vandalism as the wilful damage or destruction of another's property (1981, p. 15). The Ontario Task Force (Beaulieu, 1981) points out that limiting the definition of vandalism to "wilful destruction of property of another" does not mean that causes of this behaviour will not also be causes of other offences. It is also necessary to note that the Ontario Task Force's definition excludes theft, which may fall under the definition of vandalism proposed by other writers.

As Cohen (1973 a,b) has indicated, the term "vandalism" does not imply a specific definition. Given these definitional problems, it is easy to see why the extent of vandalism damage is difficult to estimate and why comparisons across different reports are fraught with error.

A Typology of Vandalism

Vandalism is often described as a senseless, destructive act which appears to be engaged in without apparent motive. Recent social psychological analyses of vandalism reveal a different dimension to this puzzling behaviour. In this view vandalism is seen as purposeful act embodying social protest, deliberate rebellion, play, economic gain or combinations of the foregoing motives. This view has been expressed most clearly in the writings of the English psychologist, Stanley Cohen. Cohen (1973b) describes a continuum of destructive behaviours which at one extreme is tolerated by society, while the other pole is labelled vandalism. The following typology begins with the range of socially tolerated behaviours and concludes with criminal behaviour.

Vandalism as Institutionalized Rule Breaking

1. Ritualism - Certain forms of property destruction are usually tolerated when they occur during very specified and limited periods of time (i.e. Halloween, Grey Cup weekend).

2. Protection - Certain groups are given a collective "licence" by society to engage in vandalism. "Pranks" performed by university students may be tolerated as long as the behaviour does not exceed certain undefined limits.

3. Play - Abandoned buildings and construction sites may

suffer property damage by children. The community may tolerate this behaviour because of the youth of the offenders or because the targets are fair game.

4. Writing Off - Certain behaviours are regarded as normal in certain environments (graffiti on washroom walls, defacement of advertising posters, etc.).

5. Walling-in - Property destruction occurring within the institutional confines of schools, prisons, factories, etc. that is usually tolerated by institutional authorities.

Ideological Vandalism

Cohen described a class of property destruction having either or both of the following characteristics:

1. A rule is broken as a means toward some explicit and conscious ideological end. An example would be the spraying of "War" on a series of "Stop" signs or the destruction of highway billboards by ecology groups.

2. There is no consensus over the content of the rule which is being broken and, more particularly the content of the rule is being explicitly and consciously challenged. An example of this class of behaviour would be the recent rash of bombings and attacks.

Conventional Vandalism

This category constitutes the bulk of the behaviours usually brought to the attention of police authorities and

labelled by the public as vandalism.

1. Acquisitive Vandalism - This is damage done in the course of, or in order to acquire money or property. The range of behaviours includes stripping plumbing to sell as scrap, removing street signs, and the looting of parking meters, vending machines and public telephones.

2. Tactical Vandalism - Here vandalism is committed with the goal of incarceration in prisons or hospitals to provide a warm home during winter or during periods of high unemployment.

3. Vindictive Vandalism - Destructive behaviour engaged in as indirect as a form of retaliation or retribution against individuals or institutions.

4. Play Vandalism - Here the motivation for destruction takes on a competitive or skill testing where the individual tries to break more windows than his playmates, or the individual seeks to test marksmanship skills on passing automobiles with an air rifle or slingshot.

5. Malicious Vandalism - Here the individual derives personal satisfaction through the destruction of other's property. The action is directed against targets whose ownership/identity is known and appears in response to particular situations or needs. Boredom is one motivation frequently cited for producing malicious vandalism. Examples of malicious vandalism would be incidents of automobile tire slashing, burning of picnic tables and the destruction of trees, shrubs and flowerbeds.

Prevalence of Vandalism

Public Opinion. The Ontario Task Force on Vandalism conducted survey research to gauge public opinion regarding contemporary vandalism. When asked whether vandalism was a problem in their community, 37% of the Toronto respondents and 56% residing beyond Metro, indicated that they thought vandalism was a problem (1981, p. 25). Sixty-seven percent of the Toronto residents polled believed that vandalism was increasing. The survey also asked respondents to compare the seriousness of a theft goods valued at $100 and an act of vandalism creating $100 damage. The offences were regarded as equally serious by half the respondents. In the other half of the respondents, about three times as many perceived vandalism to constitute the more serious offence. In an Ontario provincial survey of secondary school students, only about half described vandalism, as either "quite" or "very serious". Overall in this group, vandalism was regarded as less serious than either shoplifting or breaking and entering.

In a report by Chepynoha and Parwicki (1981, cited by Beaulieu, 1981), Toronto high school students indicated that a substantial number of both male and female high school students did not consider many kinds of vandalism as being serious. When given a choice of rating vandalism as "not serious", "serious", or "very serious", the proportion regarding specific acts as "not serious" varied with the action in question. The

importance of this survey is that acts presumably seen as serious by most of the community, are not uniformly seen that way by the high school students who may be the very perpetrators of such acts (Beaulieu, 1981, p. 27).

Problems in the Measurement of Vandalism

As previously discussed, if the definition of vandalism is not specific enough to clearly define what is meant by vandalism, then any data purporting to assess the incidence of vandalism is of questionable utility. The Task Force on Vandalism points out that the obvious method of assessment, conviction on vandalism charges, is not practical since only a very small proportion of offences are even brought to court. In addition, the Task Force has indicated that such data are no longer even collected by Statistics Canada (Beaulieu, 1981, p. 28). Police data are also suspect, since small offences may not be reported. Indeed, one study cited by the Task Force indicated that between 15 and 35 times as much vandalism occurs in Great Britain than is reported to police. The Task Force points out (1981, p. 38) that merely comparing monetary costs may be misleading. If one administrative unit has spent $100,000 on vandalism arising out of one incident (the burning of building or equipment sabotage) and another also has spent $100,000 to cover the costs of 1,000 incidents each costing $100 to remedy, then by citing monetary costs, the units are equivalent. Caution

is therefore needed in the interpretation of such figures. The Task Force concluded that trying to access the actual costs of vandalism is virtually impossible since existing figures were not tabulated with the present goal of vandalism assessment (Beaulieu, 1981, p. 40). Schnell, Smith, Dimsdale and Thrasher (1975) point out that the problem of counting indirect costs to gauge vandalism's cost. "A system that allows for such things as overtime for maintenance personnel, reduction in service to effect repairs, increases in insurance costs in consequence of vandalism, costs of maintaining security forces, and other indirect may appear to have more serious problems than another system which ignores these items." (Schnell et al., 1973, p. III-5). On the other hand, vandalism related costs may be hidden in general maintenance budgets. Additionally, it should be noted that it may be difficult, if not impossible, to differentiate between accidental and intentional destruction of property and the general wear and tear besetting both equipment and environments.

In telephone surveys of Ontario residents performed by the Task Force, respondents were asked if they had been victimized by vandalism in the previous year. In Toronto, 19% indicated that vandalism had occurred, while outside Toronto, only 14% stated they had been victimized by vandalism (Beaulieu, 1981, p. 31). Another survey performed by the Task Force asked high school students to confess various acts of vandalism on an anonymous questionnaire. A number of self-report studies

conducted outside Ontario found that the incidence of vandalism appears to range from 85% to 92% (although it must be remembered that this total comprises very minor offenses - i.e., scratching initials on a school desk or breaking bottle in a park). The Ontario data is similar with 89% high school students and 90% of the elementary school children confessing to acts of vandalism. With regard to more serious acts of vandalism, 29% of primary school students and 19% of secondary school students confessed to having damaged vehicle tires during the past 12 months. Even though many of the acts described may seem quite trivial, it is important to keep in mind that

> "Vandalism . . . consists essentially of an accumulation of innumerable rather petty incidents of graffiti, broken windows, defaced road signs, uprooted shrubs . . . Only a few instances of vandalism, though these attract disproportionate publicity, involve large sums in repair or replacement."
> (Clarke, 1978, p. 58)

The Ontario vandalism data reveal that the most serious acts of vandalism are the least likely to occur but, on a provincewide basis, even small percentages account for a large number of offences and a large expenditure. The Task Force concluded since some of property damage is likely to occur, vandalism is indeed part of the youth culture in Ontario. The Task Force has noted that vandalism seems to peak in the years of the midteens and then sharply declines.

A nationwide victimization survey (Anonymous, 1981) was performed in seven major Canadian cities (Vancouver, Edmonton,

Winnipeg, Toronto, Montreal, Halifax-Dartmouth, and St. John's) where vandalism was one of the criminal acts selected for study. A random sample of 61,000 residents (older than 16 years) were telephoned and asked if they had experienced a crime within the last 12 months and about their perceptions of crime and the criminal justice system, their experience with crime, and the impact which victimization may have had upon them. The incidence of vandalism was estimated at 213,000 for 1981. Sixty-five percent of the Canadian vandalism victims failed to report vandalism, with the most common reason offered for failure to report being skepticism that the police could accomplish anything. The Canadian Urban Victimization Survey indicated the average gross reported economic loss from vandalism to be $224. As a result of insurance settlement, the mean recovery was $92, resulting in a net loss of $132.

Causes of Vandalism

In reviewing hypothesized causes for vandalism, the Ontario Task Force suggested that little evidence is available which supports any particular "cause". The following hypothesized "causes" were discussed (and found inadequate) by the Task Force (Beaulieu, 1981):

a) Social decay

b) Inadequate parenting

c) Lenient courts

d) Boredom

e) Conformity pressure

f) Developmental causation

It is interesting to note that in their otherwise very well documented report, the Task Force has failed to address the very approach that current research would indicate to be the most promising one in preventing or reducing many types of vandalism. This approach views vandalism not as random actions, but rather as behaviour under the control of environmental stimuli. In this approach, there are three conceptualizations that will be discussed:

a) defensible space and vandalism

b) aesthetic theory and vandalism

c) de-opportunizing design to prevent and/or reduce vandalism

Many recent publications (Cone & Hayes, 1980; Geller, Winett, & Everett, 1982; Osborne & Powers, 1980; Wiesenthal, 1984) have documented how behavioural research in environmental psychology has successfully reduced destructive actions and fostered environmentally protective behaviours (e.g. energy and water conservation, recycling, use of mass transportation, and litter control). The prevention and control of vandalism by means of psychological strategies needs to be implemented. The development and testing of these behavioural principles of vandalism prevention is now imperative, and given the extent of vandalism, cost effective.

Defensible Space

This view holds that environmental features of buildings and neighbourhoods have provided a fertile domain of objects to be vandalized. Following the suggestions offered by Jacobs (1961) and Jeffery (1971) regarding crime in the urban environment, Oscar Newman (1972) has popularized the concept of defensible space involved with architectural design. Defensible space refers to the tenant's sense of control over space that is either facilitated or inhibited by the apartment building's design features. His research indicates that when people feel they have no control over their environments, vandalism and other crimes increase because of a combination of lack of surveillance and indifference to the environment.

Depending upon architectural design, public areas may be particularly prone to being perceived as no-man's land and hence more likely to be damaged by vandals. In describing apartment buildings, a British Home Office Research report states:

> "Vandalism on estates [public housing facilities] was found to occur mainly at ground level where most breakable items are situated and where children usually play. Public areas (for instance, entrances and underground garages) were much more vandalized than dwellings, presumably because they were less visible to residents and less clearly part of their 'territory'. Glazing was the most frequently recorded items of damage (followed by lifts [elevators] and the amount of observed vandalism at any one time was substantially affected by the amount of glazing in entrances and access ways." (Clarke, 1978, p.64).

Oscar Newman's research (1972) involving two adjacent, but architecturally differing public housing developments in Brooklyn, New York, underscores this point. The two developments housed the same type of family, but differed in that one consisted of high rise blocks, while the other was low-rise. Police and housing records indicated that compared to the low rise apartments, the high rise buildings had more crime and vandalism, with a steady increase in those problems as one moved higher up each successive floor.

In subsequent work, Newman (1975) extended his ideas further. Criticism to these suggestions has come from a variety of sources. His methodology has been criticized (Hillier, 1974; Mawby, 1977) for failing to justify why certain housing developments supporting his thesis were selected, while ignoring others that failed to lend support. Furthermore, differences in criminal behaviour may have varied more with the pre-existing social characteristics of the residents than with the built environment (Ellis, 1982). Newman's thesis that environmental defence will occur in areas with clearly defined territorial boundaries allowing for neighbourhood surveillance, has also come under attack. These critics assert that merely designing a space to be defensible would not necessarily make people more defensive of it (Taylor, Gottfredson & Brower, 1978). Others (Banham, 1974) point to defensive behaviour occuring in spaces failing to meet Newman's criteria for defensible space. Revisions to the defensible space model have been made by Mawby (1977) in England

and by Gottfredson, Brower, & Taylor (1979) in the United States.

In the United States, Newman's design concepts have been taken seriously as indicated by the federal government's sponsorship of design criteria research for the implementation of defensible space in community planning (Gardiner, 1978; Newman, 1976). In Canada (Wachtel, 1982), the Newman-Jeffery notions of defensible space were implemented in the development of Tumbler Ridge, British Columbia. In this town's planned commercial core, the stores have large, open windows. The main street meanders instead of running straight and the shops are angled so that people's attention is directed and focused to side, as well as front windows. The hotel (with its pub) is off the main street at the edge of downtown, rather than in the centre to direct rowdies away from the temptation of breakable store windows. The parking lot opens onto a main road that passes the RCMP station en route to the residential area. Schools and the recreation centre are clustered together at one end of town to keep children away from the stores and houses (Wachtel, 1982). Wachtel (1982) claims that cul-de-sacs, in comparison to grid network street designs, reduces crime. The RCMP constable quoted by Wachtel, (1982, p. 53) claimed that cul-de-sac design has "the highest monitoring, social interaction and excellent security" compared to other designs. Research has supported the notion that cul-de-sacs improve familiarity with neighbors (Willmott, 1963, Willmott & Cooney, 1963; Mayo, 1979).

Patterson (1978) observed visible territorial markers of elderly homeowners in a middle class community in central Pennsylvania. Territorial markers consisted of "No Trespassing" and "Keep Out" signs, fences, welcome mats, doorway viewers, and owner's initials on chimneys. On an additional measure assessing the residents fear of being a crime victim, it was seen that homeowners with more territorial markers were less fearful of crime than were the low territorial elderly. While these are only correlational results, Patterson interprets the data as suggesting that territorial control reduces anxiety concerning crime. In a doctoral dissertation, Brown found evidence supporting Patterson's notions (New York Times, 1983). Brown's research confirmed that high fences and locked doors reduce the probability that a house will robbed. However, even purely symbolic barriers seem to be just as effective in deterring a burglar. Shrubs and trees planted near a home will reduce its chances of being robbed because the dwelling looks less exposed than a house without them. "Residents who expressed pride in their homes, who believed their homes, gave them privacy and who know their neighbours were less likely to have experienced burglaries "(New York Times, 1983). Brown reported that cul-de-sacs had fewer burglaries than did straight streets because the enclosed areas afforded a sense of territorial control. In contrast, streets with traffic signs had more burglaries, possibly due to their greater use by outsiders. Neighbourhood variables also influence the probability of

residential burglary. Houses in neighbourhoods that convey a sense of territoriality because they are well maintained and isolated from business/industrial areas have the lowest burglary risk. The psychological barrier presented by a neighbourhood with a feeling of territoriality is an effective deterrent, even when it contains expensive homes, a seemingly prime target for criminals. According to Brown, burglars will often rob working class houses if the neighbourhoods lack a sense of territoriality.

In their investigation of school vandalism, Pablant and Baxter (1975) found a similar relationship between neighbourhood, territorial surveillance and vandalism damage. Sixteen pairs of public primary and secondary schools in Houston, Texas were matched for size, ethnic composition, grade level and location. Schools with low levels of vandalism were characterized by excellent building upkeep and grounds maintenance. In line with Jacobs (1961) philosophy, the low vandalism schools were located in areas characterized by multiple usage - residences, commercial buildings recreation centres, churches, etc. High vandalism schools were seen to border on railroad tracks, freeways, vacant lots or parks. Pablant and Baxter (1975) conclude that schools experiencing high levels of vandalism are isolated from the mainstream of the neighbourhood's life. "It may be assumed that isolated schools, or schools located in low density areas have less potential for neighbourhood vigilance, and, therefore, are more vulnerable to

vandalism (1975, p. 276).

Zeisel (1976) has researched a series of design recommendations for school architecture, suggesting many of the same points established in Pablant and Baxter's (1975) paper.

Aesthetics and Vandalism

Allen and Greenberger (1978a, b; 1980; Greenberger & Allen, 1980) have extended Berlyne's (1971) theory of experimental aesthetics to explain certain forms of vandalism. Aesthetic theory assumes that vandalized objects are not randomly chosen, but rather selected on the basis of the pleasure aroused in the vandal when he destroys these objects. Objects are chosen that will provide the greatest pleasure for the vandal. Allen and Greenberger suggest that the same variables that account for the pleasure that accompanies socially acceptable aesthetic experiences are responsible for the enjoyment associated with socially unacceptable acts of destruction. Berlyne (1971) proposed that the pleasure (hedonic) value of a stimulus is determined by its potential for eliciting arousal or dearousal, both of which can produce pleasure under specified conditions. A moderate increase in arousal will be experienced as enjoyable to a point of very high arousal; beyond this level, any further increase will be unpleasant, and a decrease in arousal will be pleasant (Allen & Greenberger, 1978a, b). The key variables influencing the perception of pleasure are the complexity, expectation, novelty, intensity, and patterning of the stimulus

object. When subjects were shown films of breaking window panes and asked to indicate their desire to break similar pieces of glass, the rank order of commitment to break a pane of glass was directly related, as predicted, to its perceived complexity. With increasing complexity of the breakage, subjects perceived more pleasure and interest. When the subject's expectancy was disconfirmed (when a struck window failed to break), pleasure was experienced. In another experiment, students rated the following construction materials, producing the following ranking in terms of pleasure derived from breaking: mirror glass (most enjoyable), plate, glass, tiles, wood, and metal (Allen & Greenberger, 1978a). These investigators also mention anecdotal reports of incidents of vandalism previously committed by university and high school students which lend support for the laboratory data. It is interesting to note that many of the recommendations suggested by Allen and Greenberger were previously described by Sommer (1974) in his critique of "hard" architecture.

One major difficulty with the Allen and Greenberger research deals with its low experimental realism which severely limits its generalizability to real world settings. By defining vandalism as subjects watching <u>films</u> that depict the breakage of construction materials, and by having university students engaged in knocking over toy building block towers, two difficulties emerge:

a) University students are drawn from the age group

considerably less vandalism prone than younger high school students

b) "Damage" in the laboratory setting is socially sanctioned and, indeed in some of the Allen and Greenberger research, even required by the experimenter's demands. In some of their experiments, the authority figure is portrayed as the vandal, with the subject reduced to the role of witness. This is very different from the context of the real world which strongly disapproves of vandalism. How much of the Allen and Greenberger research generalizes to naturalistic settings remains open to question because of these difficulties. Research conducted in a more naturalistic setting is vitally necessary to evaluate aesthetic causation of vandalism.

Creating Inhibitions Against Vandalizing Particular Targets

Given the serious nature of the vandalism problem, it is understandable that concern has been directed at strategies to reduce or prevent vandalism. Considerable attention has been devoted elsewhere in examining police techniques (Schnell et al., 1973), human relations training programmes (Mayer & Butterworth, 1979; Mayer, Butterworth, Nafpaktitis, & Sulzer-Azaroff, 1983), the efficacy of burglar alarm systems (White & Fallis, 1980) and changes in criminal justice legis-

lation (Beaulieu, 1981). This review will be devoted only to approaches dealing with environmental factors that might prevent or reduce vandalism.

Environmental factors to be discussed consist of:

a) Modelling effects produced by existing vandalism damage

b) The development of more durable, vandal resistant construction and furnishing materials

c) The implementation of aesthetic variables ("de-opportunizing design") to deter vandalism.

Vandalism and Modelling Effects

The Task Force has suggested that vandalism damage be promptly repaired. The underlying notion is that "vandalism begets vandalism" (Beaulieu, 1981, p. 144). The reasoning involves what psychologists have termed modelling behaviour, where behaviour is imitated that was previously displayed by another individual (the model). Just as littering research indicating that messy areas produces more littering behaviour than tidy, unlittered sites (Krauss, Freedman, & Whitcup, 1978, Wiesenthal, 1984) by signalling that littering may be appropriate in some sites, vandalism damage may provoke additional destruction. The Task Force conjectured that in already vandalized sites, the potential vandal assumes that the behaviour is really not very deviant or objectionable since others have

already engaged in similar destructive actions and the new damage may be perceived as adding no further cost to anyone (Beaulieu, 1981, p. 144). It is further suggested that the existence of vandalism may even stimulate vandalism by suggesting the impulse for environmental destruction where it may not have even occurred to the individual prior to seeing the damage.

Development of Vandal-Resistant Materials

With this approach the architectural and manufacturing sector seeks to provide substitute building materials that will resist breakage and other forms of vandalism. By substituting toughened plastic for glass in windows and lighting fixtures, maintenance costs will be lowered. The provision of more durable building materials and furnishings (i.e. washroom sinks, toilets, etc.) along with minor design changes (i.e. elimination of easily breakable skylights) is seen as reducing the number and diversity of targets of opportunity for the vandal. The problem with this approach ("target-hardening") is that the costs incurred in making the design vandal-resistant may be greater than the costs attributable to vandalism, although it is necessary to project these costs over the life of the facility. Robert Sommer (1974), as well as Ward (1973), points out that, paradoxically, the same designs that were meant to discourage vandalism may actually encourage it. Sommer cites the example of an all-concrete public washroom that was destroyed by sledge-hammer wielding vandals who may have

perceived the design as a challenge to be met and overcome.

For additional material on the architect/designer's role in the prevention of vandalism utilizing this "target hardening" approach, see Sykes, 1979; Miller, 1973; Leather & Matthews, 1973 and Farmer & Dark, 1973.

De-opportunizing Design Concepts

Drawing upon the work of Allen and Greenberger (1978a, b), Wise has described the application of aesthetic theory in the prevention/reduction of vandalism during the design phase of a project. Wise (1982) also states that the target hardening approach to combatting vandalism may only serve as a challenge to the vandal to destroy the seemingly indestructible material or facility. Unlike Sommer (1974) however, he feels that the design approach of utilizing high quality construction material that attempts to impress on users that the facility should not be vandalized because it has been thoughtfully built for their enjoyment, is also ineffective. Wise reports (1982) that "too many high-quality materials have been abused by people who seem to have little sensitivity for values expressed in unfamiliar forms" (p. 32).

Wise proposes that designers create a setting that welcomes its users while protects itself against them. This strategy, termed "De-opportunizing design" rests on two assumptions:

(a) Vandalism is opportunistic rather than premeditated.

(b) Behavioural controls exerted on vandalism are qualitatively the same as the controls on other forms of environmental behaviour.

Property damage can be avoided by design elements that do more than resist attack; design can be used to subtly steer the user away from destruction or defacement. Wise (1982) states "De-opportunizing a setting, then means designing out the ways and means by which it can be damaged as part of ongoing activities, and designing in the props and cues that encourage nondestructive use" (p.34).

Wise indicated that there is no single set of physical properties or characteristics that can be labelled as "de-opportunizing design." Different settings will have different features that invite vandalism and require various kinds of controls to inhibit it. Three distinct principles are proposed:

(a) Designers should encourage an attitude that is incompatible with images or activities that lead to damage. This means providing cues or props that channel a user's attention away from potentially damaging activities.

(b) Designers should aim at reducing the effects of natural processes (e.g., erosion, weathering, etc.) which vandals may augment. Where possible, these trouble spots should be eliminated.

(c) Vandalism may be lessened by decreasing the

reinforcement of reward produced by destructive acts. Wise (1982), as well as Cohen (1973a), point out that vandalism seems guided and encouraged by "augmented feedback"--when the destructive action brings a response through changes in other elements. By eliminating this type of feedback, the probability of vandalism is presumed to decrease.

De-opportunizing design emphasizes the importance of studying the motivational factors involved in stimulating acts of vandalism. The vandalism factor most relevant for de-opportunizing design would be Cohen's (1973a, b) play and malicious vandalism. Once the motive for particular acts of vandalism is established, then the concepts of de-opportunizing design may be employed to deflect or deter vandalism.

STUDY ONE: SOCIAL AND ENVIRONMENTAL FACTORS ASSOCIATED WITH RESIDENTIAL VANDALISM

GOAL AND OBJECTIVES

This project will involve a comparison of vandalized and nonvandalized houses to extend the work of Pablant and Baxter (1975) concerning school vandalism and Brown's examination of residential burglary. The comparison between vandalized and nonvandalized residences will be within the same neighbourhood, in order to control for socio-economic differences. However, in order to do this an instrument or measure was needed to

assess a variety of residential and neighbourhood characteristics. Therefore, another objective of this study was to develop a measure which would include these residential and neighbourhood characteristics. This measure was called the Neighbourhood Attribute Scale (N.A.S.). It allowed for determining which stimulus or combination of stimulus elements may either attract or deter vandalism damage. The Neighbourhood Attribute Scale is divided into two components, each of which taps both the environmental and social factors of the residence and the neighbourhood, respectively. For example, the section for tapping environmental factors includes the observation of: 1) surveillance opportunities; 2) existing territorial markers and personalizing features such as statutory, garden, etc.

The section for tapping the social factors of the neighbourhood includes 1) the quality of neighbourhood attributes (eg. cohesiveness); and 2) relations with neighbours (eg. ask them to receive a parcel? watch the house? lend to or borrow from? etc.). These social factors were found out through the interviews conducted with the homeowners.

Therefore, the hypothesis advanced is that environmental and social factors may either produce or inhibit vandalism. Environmental and social stimuli can be assessed using the Neighbourhood Attribute Scale to determine their influence on vandalism. As a result of this general hypothesis, the seven following predictions will be tested:

1) Vandalism will be more prevalent in low territorial households and in residences with minimal personalization.
2) Vandalism will be more prevalent in poorly maintained dwellings.
3) Vandalism will be higher in residences that offer a lower potential for neighbourly surveillance.
4) Vandalism will be higher in residences with little presence of physical or symbolic cues (eg. physical cues-fences, alarms locks, symbolic cues-hedges, welcome mats, name plates).
5) Vandalism will be higher in residences close to parks, schools, and/or stores.
6) Vandalism will be higher in residences which are located in areas with many children under 18 years of age.
7) Vandalism will be more prevalent where little or no social cohesion exists (i.e., poor relations with neighbours).

If these predictions are supported by the data collected, then some guidance will be provided for architects and planners in their future development of communities that deter vandalism.

In this study, the independent variables will be personal-

ization and/or territoriality, neighbourhood maintenance, surveillability, and the presence of physical and/or symbolic cues (i.e., actual and symbolic barriers). Each of these terms must be operationalized. First, territoriality in this study refers to the resident's feelings toward and sense of identity with his/her home. Second, personalization can be defined as the extent to which the household is made unique and personal through such features as a lawn statuary, nameplates, flags, arches, etc. Third, neighbourhood maintenance refers to whether the quality of the environment is adequate, or inadequate by way of landscaping, litter, maintenance, etc. Fourth, surveillability refers to the ability the physical design of the neighbourhood provides for viewing other properties, for example, clear lines of sight, adequate street lighting. Lastly, physical cues, on one hand, involves those aspects of the dwelling that are actual barriers to a potential vandal. For example, cues such as fences, locks and alarms may deter vandals. Symbolic cues, on the other hand, include those aspects of the dwelling environment which communicate the territorial concern of the owners. Such cues are landscaping, hedges, welcome mats, colour of the house, etc.

The dependent variable will be the incidence of vandalism. In other words, vandalism damage is predicted to be dependent on little or no sign of personalization, poor maintenance, low surveillability, and absence of physical and symbolic barriers. On the other hand, vandalism is predicted to be low when there

is a lot of personalization, good maintenance, high surveillability and presence of physical and symbolic barriers.

METHOD

Data Collection Instrument

In this project, a modified version of Pablant and Baxter's "School-Neighbourhood Attribute Scale" was developed. This new measure is called the "Neighbourhood Attribute Scale" (see Appendix A). The scale includes the following variables: territorial markers, personalizing features, surveillance opportunities, neighbourhood attributes, and attractiveness of neighbourhood. The questionnaire can be divided into two sections. The first section involves the interview questions concerning the incident and the victim's subsequent responses. The second section is a scale used by the interviewer himself to assess the quality of the residence, the quality of the neighbourhood and surveillance opportunity (either with respect to the dwelling in question and from the vantage point of neighbouring houses).

Procedure

In order to compare vandalized and nonvandalized residences, a sample of both was needed. To find such residences, a door-to-door interviewing strategy was used in the St. Clair and Old Weston Road area (City of Toronto) and in the Kingston

Road-Warden Avenue area (City of Scarborough). The interviews were conducted between December 1, 1985 and March 31, 1986. Upon commencing the interview, student identification was displayed to all respondents and the study's purpose was given. All residents were asked whether their home had been vandalized at any time since their occupancy. The homeowners who responded affirmatively to being vandalized were then interviewed. Questions asked concerned: actions taken after the vandalism, behavioural changes made since the damage, feeling experienced after the incident and social contacts in the neighbourhood. After having completed the interview, the second part of the scale was rated by the interviewer, who assessed various environmental features with respect to the house and its surroundings.

Those homeowners who had <u>not</u> experienced any vandalism damage were asked to answer a few questions with respect to the neighbourhood's social characteristics (eg. the number of neighbours they knew, how often they spoke to neighbours, etc.). Following the interview, the second part of the scale was rated. This provided the data for comparing neighbourhood characteristics of vandalized and nonvandalized homes.

Each interview was approximately half an hour to 45 minutes in length depending on the amount of detail provided by the respondent. The investigator's ratings following the interview, took between ten to fifteen minutes to complete.

After having conducted all interviews, a total of 41

questionnaires were complete. Twenty-one (n=21) questionnaires involved vandalized residences and nineteen (n=19) questionnaires involved non-vandalized households. Four questionnaires had to be discarded, three of which were incomplete and one of which was terminated.

Two interviewers were involved in this study - one male and one female. Furthermore, some interviews were conducted in Italian because many respondents in the St. Clair and Weston Road area could only understand Italian. Conversely, the Warden and Kingston Road area consisted of many families of British descent.

The former neighbourhood was selected because it was predominantly Italian. It was assumed that there was more community contact and surveillance, thus leading to less vandalism.

The latter neighbourhood was selected because it was in an area which is frequented by many youths. More specifically, the Scarborough Bluffs offers seclusion and is a place where youths gather to drink. It was assumed that there would be a higher rate of vandalism in this Scarborough area.

Although these assumptions were made, the results indicate the vandalism was not only infrequent in Toronto's West-end community, but also in Toronto's East-end community. Only 13 cases were found in the west and 8 cases in the east.

RESULTS AND DISCUSSION

The purpose of this research is to test whether or not the incidence of vandalism is associated with environmental and social characteristics.

The results for each of the seven hypotheses will be given separately. Each hypothesis will be subdivided and categorized by question. All questions were analyzed by frequency distribution, and were cross-tabulated by Question 1: "Have you ever had your house or property vandalized since moving to this house?" In addition, T-tests were performed on all continuous variables and scales.

Question 1: Have you ever had your house or property vandalized since moving to this house?

In this study, a total of 195 households were asked this question. Calculated as a whole, 89% (n=174) of all respondents said "no", whereas 11% (n=21) said "yes". However, only a sample size of forty (N=40) was used because only forty questionnaires were completed.

As a function of neighbourhood, Toronto's West-end community and 8.4% (n=13) vandalized and 91.6% (n=142) non-vandalized while Toronto's East-end community had 20% (n=8) vandalized and 80% (n=32) nonvandalized homes.

Question 3: What was the approximate cost of the vandalism?

The frequency distribution for this variable indicates that the mean dollar value of damage was approximately $199 (M=$198.81). The mode obtained for this variable was calculated at $50; 28.6% (n=6) of vandalized residents reported $50 worth of damage.

Question 4: Did you contact your insurance company to file a claim?

The frequency distribution on this variable indicates that 4.8% (n=1) out of a total of 21 vandalized respondents contacted their insurance company to file a claim. This finding may suggest that the majority of vandalized residents felt that the incident was either deductible from their policy or that the amount of damage did not warrant contacting their insurance company.

Hypothesis 1: Vandalism will be more prevalent in low territorial households and in areas with minimal personalization.

In this first hypothesis, it is assumed that residences are more vulnerable to vandalism when its occupants display few territorial behaviours (eg. erecting fences) and display minimal personalizing features (eg. windmills, arches, nameplates).

Territorial Behaviour

The variables that pertained to displays of territorial behaviour included all sections of questions 18 and 19 (Refer to Appendix A).

Question 18: Which of the following changes to your home have you made since the vandalism?

The cross-tabulation of Question 1 with sections of Question 18 revealed that only 14% (n=3) of those who were vandalized made any changes to their homes after the incident.

Question 19: Which of following changes has your family (or other) made to your home since you moved in?

For this question, an average of 40% (n=16) of the respondents had made changes to their homes since moving in. Furthermore, three statistically significant findings emerged when cross-tabulations were performed on Question 1 with Question 19 A, C and F.

Question 19A: Has your family erected a fence around your home since moving in?

The results indicated that 66% (n=14) of vandalized respondents had put up fences whereas only 36% (n=7), $p<.05$ of nonvandalized respondents had. In other words, significantly more fences were erected by those who were vandalized than those who were not.

Question 19C: Have your family added exterior lighting since moving in?

The results indicated that there were significantly more vandalized respondents at 57% (n=12) who had added exterior lighting than nonvandalized homeowners at 21% (n=4), p,<.045.

Question 19F: Has your family planted flowers/ vegetables around the house since moving in?

The findings suggested that 81% (n=17) of victimized owners planted flowers and/or vegetables while only 42% (n=8) of nonvandalized residents planted outside the dwelling. The level of significance obtained was p<.03.

These three findings are incompatible with the expectations stated in the hypothesis. The results seem to suggest that these territorial activities - erecting fences, adding exterior lights, and planting flowers and/or vegetables - were more frequently engaged in by those who paradoxically became the victims of vandalism. In light of Barbara Brown's (1978) research on burglary and environmental design, these findings cloud the issue. Brown found that actual barriers such as fences inhibit potential burglars from intruding into a dwelling. In addition, she found that symbolic barriers (in our case, flowerbeds and exterior lighting) should also keep intruders away.

One must consider when and to what extent do these territorial behaviours - such as erecting fences and adding exterior lights - help inhibit vandalism. In other words, one

must determine to what extent each display or behaviour serves its full deterrent function. It is important to note that many times gates on fences may be left open thus making entry and exit easier. Also, exterior lights may be left off at night for various reasons (eg. no need for them, energy conservation). In conducting the interviews, it was seen that 10% (n=4) of all houses and exterior lighting on at night. Such actions may put the target home at risk for vandalism.

Personalizing Features

The variables that pertained to personalizing features included Questions 41 and 42. Each of these questions was a scale (Refer to Appendix).

Cross-tabulation of Question 41 and Question 42 with Question 1 revealed no statistical significance. So too, chi-square analysis and T-tests performed on each failed to reach statistical significance.

Question 41: Similarity of houses on the block.

Although not attaining statistical significance on the above analysis, it is interesting to note that 32% (n=6) of nonvandalized houses were dissimilar or unique while 76% (n=16) of vandalized homes were rated as similar. Some neighbourhood features that helped distinguish between a rating of "unique homes" as opposed to a rating of "similar houses" were details such as: exterior paint colour, design of houses (i.e.,

bungalow, two story, etc.), style (i.e., contemporary, Victorian, etc.) and type (i.e., single, semi-detached, etc.).

Question 42: Quantity of personalizing details on house.

For this variable, it was interesting to find that 50% (n=9) of the nonvandalized homes had very many or some personalizing features (i.e., at least three or four features), whereas 50% (n=11) of the vandalized homes had a minimum of one or no personalizing features. Some examples of homes with personalizing detail included: swans on the front lawn; very ornate front veranda with marble statues, and a glassed-in statue of Virgin Mary surrounded with flowers. It should be noted that this statue became the object of one vandal's damage. The glass enclosing the statue was broken. Therefore, personalizing features may, on one hand, deter some vandals while, on the other hand, attract others. The statuary may have provided the cue for channelling the vandal's attention away from the house onto the statue (Wise, 1982). In other words, more damage could have been incurred to the house, had it been the target. Conversely, Allen and Greenberger (1980) might argue that the statue, not the home, may have been the initial target. According to aesthetic theory, the statue was selected on the basis of its potential for arousing pleasure in the vandal. It may also have constituted a political statement if the vandal was an atheist or anti-Catholic or anti-Italian or all three.

Hypothesis 2: Vandalism will be more prevalent in poorly maintained households.

This second hypothesis assumes that vandalism is associated with poor dwelling maintenance as well as poor neighbourhood conditions. The variables that pertained to this environmental characteristic included Questions 19, 40, 64, and 65. All four questions were subjected to cross-tabulation with Question 1 and chi-square analysis. None of these yielded any statistical differences between those who were vandalized and those who were not. Nonetheless, some comments can be made about each variable.

Question 19: Which of the following changes has your family made to the home since moving in?

This variable was used as an index of the degree of territorial concern the proprietor has for the dwelling. Altman (1975) advanced the notion of primary territories which are central to the lives of the owners and are occupied for relatively long periods of time. This view, implicitly suggests that the home will be a sanctuary to be highly guarded and meticulously attended to by the homeowner. The findings for this study suggest that a mean of 26.8 out of a total of 40 respondents (or 67% of total cases) made no changes since moving in. This finding was relevant to both vandalized and nonvandalized groups.

Question 40: Quality of street lights on neighbourhood.

This variables involved rating the "quality of the light" in the neighbourhood. There was no statistically significantly difference found when cross-tabulation with Question 1, and chi-square analysis was performed. The failure to find a difference on this measure due to the comparison of vandalized and nonvandalized homes on the same street. Regardless of a home's status as vandalized or nonvandalized, a street received one rating as a whole. Data should have been collected to compare neighbourhoods. However, given the small sample size, it would be meaningless to compare vandalized and nonvandalized homes by this neighbourhood attribute. In the future, quality of light ratings should be made with respect to the immediate surroundings of the home rather than rating with respect to the neighbourhood as a whole. Therefore, Question 40 should be changed from quality of street lights on neighbourhood to quality of street lights with respect to the target household.

Question 64: Quality of house maintenance.

Cross-tabulation with Question 1 and chi-square analysis yielded no statistically significant difference between those who were vandalized and those who were not.

Question 65: Quality of yard maintenance.

This question, too, was subjected to the above analyses, but it lacked statistical significance. However, it is interesting to note that 89% (n=17) of nonvandalized homes were rated as possessing good or excellent yard maintenance. Conversely, 57% (n=12) of the vandalized homes were rated as only having good maintenance. Furthermore, with respect to the related Question 73 (i.e., the presence or absence of trash or litter in yard), the findings suggest that in 80% (n=35) of the cases, litter in the yard was absent.

Overall, using cross-tabulation and chi-square analysis seems to produce no association between houses and yard maintenance and vandalism damage, contrary to what was initially predicted. Pablant and Baxter (1975) indicated that vandalism occurred less frequently in schools characterized with excellent building and ground maintenance. However, in this study, there are two factors which may have accounted for our lack of statistical significance.

The first confounding factor may have been that sample size is too small; with only 21 vandalized cases, it is difficult to find statistically significant differences. Furthermore, the study involved only a restricted environment of just a few blocks in two neighbourhoods of Toronto.

Second, the interview section of the study was conducted in the winter between the months of December and March. As a result, yard maintenance was hard to assess. In Toronto the

ground is usually covered with snow. Therefore, litter and bald patches on the lawn may be covered. Furthermore, residents may not leave possessions outside such as children's toys, tools, etc. So, too, sprinklers and lawn mowers are not necessary in the winter. It is important to bear in mind that in the summer these household items (such as sprinklers) serve a protective function; they may serve as symbolic cues (cf. Brown, 1979) or as territorial markers (cf. Patterson, 1978) to protect a household from potential vandals or intruders.

Hypothesis 3: Vandalism will be higher in residences that offer a lower potential for neighbourly surveillance.

The third hypothesis assumes that neighbourly surveillance is associated with the incidence of vandalism. In other words, residences that offer little or no surveillance opportunity will tend to have a higher incidence of vandalism. The social characteristic of surveillability was derived from the Question 16, 27, 49, and 51. All four variables were cross-tabulated with Question 1 and were subjected to chi-square analysis.

Question 16: Is there a Neighbourhood Watch operating in your neighbourhood?

The presence of a community-based Neighbourhood Watch did not yield statistically significant differences between vandalized and nonvandalized households. As a matter of fact,

an equal number from each - 40% (n=8) vandalized and 42% (n=8) nonvandalized households - had a Neighbourhood Watch.

Question 27: How many hours per week is the home unoccupied?

This variable did not yield statistically significant results. This may have resulted from insufficient data. More specifically, many respondents refused to answer the question because of its "loaded" quality. Some were suspicious to give out such information, while others wanted assurance of confidentiality. A total of 60% (n=24) of the total respondents refused to answer the question.

Question 49: Describe surveillability of front from residence across the street.

Having performed the above tests on this variable, no statistically significant findings emerged. However, it is interesting to note that 60% (n=24) of the total residences had excellent surveillance potential from houses across the street - of which 54% (n=13) were not vandalized and 46% (n=11) were vandalized.

Question 51: How far is the next residence behind this dwelling?

A T-test was performed on this variable. This test yielded a statistically significant difference between vandalized residences. In other words, those households that were vandalized had a dwelling located behind them at a farther mean

estimated distance (M=56.5) than those not vandalized (M=35), $t(19)=-2.53$, $p<.03$. This finding may help support that surveillance opportunity, from the dwelling behind the target home, is more difficult from a farther distance.

In sum, the prediction that vandalism is associated with surveillabililty was not strongly supported by the results. However, Mayhew (1981) stated that the public itself serves as an informal surveillance network that provides a deterrent effect on potential offenders. This view was popularized by Jane Jacobs (1961) in The Death and Life of Great American Cities. This may be the case, but certain weaknesses may have been inherent in this study.

First, the surveillance opportunities and distances between dwellings were only estimated by two undergraduate researchers and their accuracy may have been different. As a result, the data may have been affected by inconsistent ratings given by each investigator. For example, distances between dwellings were not actually measured. Thus, using estimates may have introduced the potential for error. This problem may have been rectified by obtaining area maps which outlined specific property or lot measurements.

Hypothesis 4: Vandalism will be higher in residences with little or no presence of physical or symbolic cues.

The fourth hypothesis is derived from the research of Brown (1978) who found an association between burglary and

environmental features. Overall, the results from this study suggest that there is very little, if any, association between vandalism and the presence of physical or symbolic cues or both.

Physical Cues

The variables that pertained to physical cues included Questions 91, 92 and 95.

Question 91: Actual barriers present between yard and street?

Question 92: Actual barriers present between yard and house?

Both of the above questions were subjected to chi-square analysis and were cross-tabulated with Question 1. However, no significant findings emerged.

Question 95: Was the gate, if present, open or closed?

This variable was also subjected to chi-square analysis and was cross-tabulated with Question 1. No statistically significant difference was found between vandalized and 65% (n=25) of all respondents had no gate at all. However, those 37% (n=15) who did have gates - of which 40% (n=7) had not been vandalized and 60% (n=8) had - had them closed on all observations.

Symbolic Cues

The variables that pertained to symbolic cues included Question 19F, 70A and 75. These variables were chosen on the grounds that each seems to provide a clue (to a potential vandal) of the homeowner's presence in the target home. All three variables were subjected to a chi-square analysis and were cross-tabulated with Question 1.

Question 19F:Has your family planted flowers/ vegetables around your home since moving in?

This variable was looked at earlier as part of Hypothesis 1. It was the only variable in the fourth hypothesis to yield significance level of $p<.05$ when cross-tabulated with Question 1. The results indicate that 81% ($n=17$) of vandalized homeowners planted flowers/vegetables while only 42% ($n=8$) of nonvandalized residents did so. This finding suggests that those who create symbolic barriers around their home are vandalized to a greater extent. This is inconsistent with the hypothesis which implies that the vandalism rate should be lower in residences with more symbolic cues.

Question 70A:How many cars were parked on the driveway?

This variable served as a symbolic cue in that it may indicate whether the homeowner of the target home is present or absent. The findings indicate that 53% ($n=10$) of all non-vandalized homes as compared to 52% ($n=11$) of vandalized homes,

had no cars parked in the driveway. Therefore, no statistically significant finding emerged when this variable was cross-tabulated with Question 1.

Question 75: Outdoor lights on during the day? Present or absent?

The findings, from cross-tabulating Question 75 with Question 1, indicate that 0% (n=0) of all nonvandalized residents kept lights on during the day, as compared to 4% (n=1) of vandalized residents who did. However, this is not a statistically significant finding.

Hypothesis 5: Vandalism will be higher in residences close to a park, school, stores and/or any other places where groups of individuals may assemble.

The fifth hypothesis derives from the assumption that the composition of the street or block, in terms of its commercial, industrial, public or private make-up is associated with vandalism. In addition, it is predicted that blocks composed of multi-functional areas will be associated with higher rates of vandalism.

The variables that pertained to this hypothesis included Question 39, 55F and 55H. Both variables were cross-tabulated with Question 1 and were subjected to chi-square analysis.

Question 39: Presence of group home/boarding house in neighbourhood?

In 100% (n=40) of the cases, there was no group

home/boarding house present in the neighbourhood. Therefore, no significant finding emerged as would be expected.

Question 55F Presence of group home/boarding house in neighbourhood?

This variable was cross-tabulated with Question 1. As was expected, the data indicates that significantly more vandalized homes (42%, n=9) had a school nearby than nonvandalized homes (0%, n=0, p<.005). Therefore, proximity of houses to a school seems to be related to vandalism, as was predicted in the hypothesis.

Question 55H: The presence of highway or major thoroughfare near home?

This variable was also cross-tabulated with Question 1. The results indicate that significantly more vandalized homes were located near a major thoroughfare (33%, n=7) than nonvandalized homes (0% ,n=0), p<.02).

In Pablant and Baxter's (1975) study on school vandalism, it was found that low vandalism schools were located in areas characterized by multiple usage residences, commercial buildings, etc. Conversely, high vandalism schools were seen to border on vacant lots, freeway, and parks. As a result, Pablant and Baxter concluded that schools experiencing higher levels of vandalism are isolated from the mainstream of the neighbourhood's life. However, in this study the presence of a school seems to be associated with higher rates of residential

vandalism. Given the scope of this study, it is not known whether the school itself was also a target for vandalism.

In Waller and Okihiro's (1978) study of burglary in Toronto, it was seen that the composition of blocks in terms of commercial, industrial, school or park function did not relate to burglary rates. Although this may be true for burglary, the present findings suggest that it is the reverse for vandalism, at least with respect to proximity to schools and major thoroughfares. Unlike adult burglars, youths use such areas as schoolyards as places to meet their friends. These areas become private, secluded niches away from parental observation. It is not unlikely that youths, when gathered with their peers, use their time to play or to engage in vandalism. This is in line with the "peer pressure" theory of causation discussed earlier. Zimbardo (1969), described the concepts of "contagion" and "individuation" when referring to how the presence of other youths may make possible certain acts that would otherwise not be committed. These above explanations may shed light on the finding that a residence's proximity to a school is associated with vandalism.

The proximity to a thoroughfare may have been important because it provides access to large numbers of people including vandals. The traffic flow, both vehicular and pedestrian, were high for the major thoroughfare (Old Weston Road, refer to Appendix A). At 6:30 p.m., traffic flow was counted as follows: 20 commercial cars, vans or buses; 156 private cars

or vans; 2 bicycles; 6 children pedestrians; 4 teenaged pedestrians; and 9 adult pedestrians. Although busy thoroughfares may be related to vandalism because of easy accessibility, we must bear in mind that high traffic areas also provide more public surveillance opportunity (cf. Mayhew, 1981).

Hypothesis 6: Vandalism will be higher in residences which are located in areas with many children under 18 years of age.

The sixth hypothesis is based on the assumption that there is an association between the numbers of children living on a street and acts of vandalism. This stems from the evidence found by the Ontario Task Force on Vandalism (1981), which identifies adolescent males as the primary perpetrators of vandalism.

The variable that pertained to this hypothesis was formulated in Question 22.

Question 22: How many children (under 18 years) live on the block?

This variable was subjected to chi-square analysis and was cross-tabulated with Question 1. The results indicate that there were no statistically significant differences between the vandalized and nonvandalized groups. However, the frequency distribution indicates that the average number of children on a given block was 12.6. This may have resulted from two factors. First, most respondents, when asked to estimate of how many children lived on their block, could not give an exact answer;

many times the interviewees had difficulty coming up with an exact number. This introduces the possibility for error as well as making the validity of the responses questionable. A good way to overcome such errors would be to use census data from Statistics Canada for each street investigated. This would provide exact figures of how many children (under 18) lived in each house.

Second, since the 40 homes studied were part of a few blocks or streets, it is difficult to find significant differences between the vandalized and nonvandalized groups on the same street when recording the number of children as a constant. Instead, a comparison should have been made amongst many blocks with a varying number of children and with differing rates of vandalism.

Hypothesis 7: Vandalism will be more prevalent where little or no social cohesion exists (i.e., relations with neighbours).

The seventh hypothesis is derived from the research of Oscar Newman (1972) on defensible space. His findings indicate that when people feel they have control of their environments and a sense of community exists, vandalism and other crimes are inhibited. Therefore, our assumption was that a combination of lack of surveillance and indifference to the social environment may increase the likelihood of vandalism.

The variables that pertained to tapping social cohesiveness were Questions 17, 20B, 20D and 20J.

Question 17: Have you ever attended a Neighbourhood Watch (Block Parent Meeting)?

This variable represented the community interest in warding off criminal activity. Both chi-square analysis and cross-tabulation with Question 1 were performed. However, the results were not statistically significant. Nonetheless, it is interesting to note that 10% ($\underline{n}$=4) of all respondents - three of which had been vandalized and one had not - attended a Neighbourhood Watch meeting.

All sections of Question 20 (i.e., A-L) were cross-tabulated with Question 1. Also, chi-square analysis and T-tests were performed on all sections.

Question 20B:How many neighbours have your spoken to casually?

Subjected to the above tests, this variable did not yield statistically significant results. However, there are a few items worth noting. The findings indicate that, on the average, respondents spoke casually to 10.5 of their neighbours ($\bar{x}$=10.5).

Question 20D:How many neighbours do you borrow from or lend to (eg. books, tools, food, etc.)?

This variable, too, did not yield statistically significant differences between groups. However, the cross-tabulation with Question 1 revealed that 40% ($\underline{n}$=16) of all respondents engaged in borrowing from or lending to neighbours.

Question 20J: How many neighbours have you asked to watch your home while you were away?

The frequency distribution indicates that 35% (n=14) of all respondents would ask at least two neighbours to watch their home while away. When cross-tabulated with Question 1, the findings indicate that 24% (n=5) of those vandalized did not ask neighbours to watch their home while away compared to only 11% (n=2) of those nonvandalized. This is not statistically significant.

Overall, none of the above questions yielded statistically significant findings. There may be two reasons why these variables did not attain significant findings. First, the sample size was too small, thus allowing very few comparative observations to be made. Second, the respondents usually had difficulty in pinpointing exact numbers of people which they associate with on a neighbourly level. Since all sections of Question 20 involved the respondent's estimate, the validity of the response is questionable.

In discussing the data contained in Study 1, it is necessary to keep in mind some of the following considerations:

1. The low incidence of vandalism damage to residential environments was surprising, given the fact that the Canadian Urban Victimization study found that 65% of Canadians reported recently experiencing vandalism damage to their property. It may be that damage to automobiles far exceeds the damage to houses and the accompanying grounds. Many homeowners who were interviewed reported damage only to their automobiles. Since automobiles may be parked in variety of locations outside of the immediate neighbourhood, it is impossible to relate concepts of surveillance, territoriality, and propriety in explaining automobile damage.

2. Previous research on residential vandalism has only examined the phenomenon as it exists in high rise apartment buildings operated by municipal housing agencies. Since the inhabitants of these units may be welfare recipients and/or experiencing various forms of social disorganization, it is not surprising that social pathology may exist in these buildings. Design faults may magnify and aggravate any problems that families headed by a single mother experience in high rise housing (Newman, 1972).

3. The police records of vandalism damage were unavailable for

study. Two city's police forces would not cooperate in contacting victims of vandalism because of what they perceived to be a jeopardizing of the citizen's confidentiality in reporting vandalism to the police. The failure to get access to this information necessitated door-to-door canvassing and newspaper advertising to conduct victims of vandalism.

4. A newspaper story published in the Toronto Star dealing with the issue of vandalism, unsuccessfully requested victims to write to the investigator to participate in the present research. Equally unsuccessful was the placing of an advertisement in the Markham Economist and Sun, a newspaper published in an area characterized by explosive growth. This suburb was targeted because of the diversity of newly constructed housing and because many of the residents would have no sense of a well-defined neighbourhood and community. In the absence of such ties, vandalism should be optimized. It may be that the recency of the construction outweighed the possible social disorganization of a new neighbourhood in deterring vandalism. Another factor responsible for absence of vandalism in this neighbourhood was the absence of adolescents. Families moving into this neighbourhood were young families with younger children. Vandalism seems to increase in areas characterized by the presence of teenagers, with vandalism increasing as the number of teenagers increase in the area (Wiesenthal, 1984).

5. A variety of neighbourhoods were canvassed by both male and female interviewers. These areas represented the diversity of housing in the Toronto area: older, established neighbourhoods with a high proportion of Anglo-Saxon residents, an Italian neighbourhood in the western area of Toronto, and a recently constructed area consisting of small, relatively inexpensive (in Toronto terms), detached single family houses. Given the realities of the present Toronto housing market, it was not surprising to find that all the neighbourhoods were relatively well maintained. The shortage and expense that characterizes the local housing market no doubt, aids the maintenance of the existing housing stock. This is in marked contrast to many other cities in North America. Vandalism is lower in areas that are well maintained, so it should not surprise us to learn that vandalism was infrequently detected in the areas presently surveyed.

6. The finding that high pedestrian traffic areas around schools and walkways will experience higher vandalism damage than other areas nearby, was replicated in the present study. This relationship holds for at least two reasons: (a.) in order to have vandalism, people are necessary and a supply of children and adolescents is optimal and (b.) public areas like walkways and playgrounds often serve as traps for windblown paper and debris (Zeisel, 1976). As well, grass and weeds may not be attended to with the same level of care as a residence

receives. Again, the finding that good maintenance is essential in deterring vandalism, is germane.

7. As suggested by Cohen's (1973b) typology of vandalism and by the voluminous literature on school vandalism, youth vandalism may be directed against specific targets--i.e., schools, fussy neighbours, residents from a racial minority, etc. In these cases, vandalism may be motivated revenge against a target perceived as objectionable. This motive might override inhibiting factors in the environment like territoriality and surveillability. The low level of vandalism obtained in the present study may therefore be the result of this vengeance
motive, rather than environmental factors.

8. Another difficulty with vandalism research is accurately labelling damage as specifically the result of intentional damage, rather than by normal wear and tear or weathering (Beaulieu, 1981). With the exception of graffiti, it is impossible to state definitively that vandalism is present or absent. It is possible that victims ascribed accidental damage to what was intentionally caused and vice versa. The literature offers no suggestion as to which form of reporting bias is more common.

Study 2

The Application of Simulation Methodology to Vandalism

Objectives

Our basic intention is to determine how well certain environmental features of a single family residential house will resist vandalism. By exploring the validity of simulation methodology, the usefulness of simulation methods will be seen. Simulation offers a method for assessing the potential of various houses in eliciting vandalism.

Environmental simulations refer to the techniques used for "previewing or otherwise anticipating--in the laboratory everyday environments that have not yet been built, modified, or otherwise actualized" (McKechnie, 1977, p.169). The empirical question of whether a specific technique duplicates the essence of the "real" environment is termed ecological validity. Ecological validity is the extent to which findings utilizing the simulation are generalizable to the real environment represented in the model (McKechnie, 1977, p.183).

Hypotheses

Hypothesis One

A house with personalizing features (indicating a high sense of territoriality) will not suffer vandalism. Territoriality can be communicated through fencing and landscaping consisting of hedges, shrubs, flowers and trees. A personalizing feature would consist of a nameplate or lawn statuary.

Hypothesis Two

A poorly maintained house will be more likely to suffer from vandalism damage than a well-maintained house.

Hypothesis Three

In light of aesthetic theory, it is predicted that the type of vandalism damage that is most likely to occur will involve destructive acts likely to give pleasure. It is expected that these actions would include breaking windows, graffiti damage, and possible damage to plantings.

Method

Subjects:

The subjects consisted of 36 female and 36 male students

attending a Catholic high school located in Scarborough, Ontario. The subjects ranged in age from 15 to 18 years of age.

Research Instrument

The stimuli and questionnaire comprising the vandalism simulation was developed from a series of eight microcomputer produced drawings of homes of a style representative of many found in the Toronto area (see Appendix B). These stimuli items were produced on an Apple Macintosh microcomputer using the DaVinci Landscapes and Building software (Hayden Software) in conjunction with MacPaint software (Apple). The stimuli, along with an accompanying questionnaire were printed on an Apple Laserwriter printer. The stimuli varied the amount of landscaping, personalizing features and quality of maintenance in the simulated house.

Image 1 and 7 has a sign on the front of the house identifying the occupant as well as a welcome sign. Image 8 was designed to portray a house that had suffered extensive, unrepaired damage. The presence of trees on the side of the house and around the front door communicate both privacy and ownership. The other stimuli varied small hedges and picket fencing.

The accompanying scale on the questionnaire measured the

strength of the respondent's desire to vandalize each of the properties. The scale varied from No Desire (1) to Strong Desire (7). Thus low scores would indicate that the subject had little desire to vandalize the house, with high scores indicative of greater desire to engage in vandalism. The questionnaire also asked the respondents to list those parts of the house that they would damage if they indicated a desire to vandalize a particular dwelling. If the subject had little desire to commit vandalism, then he or she would not list any house features.

Procedure

The subjects involved in the research were recruited from an Urban Geography class and a World Issues class. The questionnaires were distributed to the students while they were in the classroom. The two classes were tested individually by a male undergraduate student. Subjects were instructed to look at each of the stimuli houses in the exact order that they appeared in their booklets. The students were given approximately 30 minutes to complete the questionnaire. By providing anonymity, the effects of social desirablity were expected to be minimized. Many of the subjects expressed concern that they might be regarded unfavourably if they were not completely honest. The only identifying information the subjects provided was their age and sex. This was explained to them as necessary for statistical purposes. Following the testing, there was a general description of vandalism.

Results

In order to examine whether sex differences existed in the desire to vandalize the dwellings depicted in the simulated images, as well as determining if different reactions were elicited by the various images, a Sex x Images analysis of variance was performed. The Images were treated as the repeated measure in this analysis conducted on the desire to engage in vandalism. As can be seen in Table 1, there were two statistically significant Fs, indicating that there were different levels of desire to vandalize the dwellings depicted in the simulations which varied from image to image ($F = 14.22$, $p < .0001$). The interaction between sex of subject and the images indicated that males and females differed in their desire to vandalize specific houses portrayed in the simulations. To test which pairs of means were statistically significant, critical difference t-tests were performed on all pairs. This analysis demonstrated that males expressed a greater willingness to vandalize the dwellings in Images 5 and 8 ($t = 1.03$, df 7,490, $p < .01$ and $t = 1.27$, df 7, 490, $p < .01$ respectively). Images 5 and 8 aroused greater desire to vandalize than did other stimuli, and this desire was more pronounced in the male subjects.

Table 2 presents all the means for both sexes separately and combined for each of the eight simulated dwellings on the subject's expressed desire to vandalize the depicted buildings.

Table 1

Analysis of Variance Summary Table for Sex x Images (repeated measures) on Desire to Vandalize

Between subjects effects	df	SS	MS	F	P
Groups (Sex)	1	15.67	15.67	1.20	.277
Ss within groups	70	915.04	13.07		
Within subjects effects					
Trials (Image)	7	216.82	30.97	14.22	.000
Trials x Groups (Image x Sex)	7	45.26	6.47	2.97	.005
T x SS within groups	490	1067.55	2.18		

Table 2

Cell Means, Standard Deviations and Ns for Females, Males and Collapsed Across Sex (Total) for Desire to Vandalize Simulated Images

Image		1	2	3	4	5	6	7	8
Females	X	2.22	1.94	2.22	2.36	2.72	2.19	2.19	3.25
	SD	1.74	1.39	1.71	1.85	2.05	1.88	1.95	2.37
	N	36	36	36	36	36	36	36	36
Males	X	2.33	2.56	2.56	2.14	3.75	1.83	2.05	4.53
	SD	1.72	1.78	1.84	1.60	2.13	1.48	1.80	2.46
	N	36	36	36	36	36	36	36	36
Total	X	2.28	2.25	2.39	2.25	3.24	2.01	2.13	3.89
	SD	1.72	1.62	1.77	1.73	2.14	1.69	1.87	2.48
	N	72	72	72	72	72	72	72	72

As can be seen in Table 2, the largest mean (indicating the greatest desire to commit vandalism) was obtained for Image 8 representing the run-down, vandalized house. Note that males expressed a mean desire of 4.53, compared to the female mean desire of 3.25. The next largest set of means was for Image 5. This stimulus featured a house with a prominent "No Trespassing" sign. Here the means were 3.75 and 2.72 for males and females respectively. Again, the greater propensity for males to engage in vandalism was apparent. There were no statistically significant differences indicating a greater desire on the part of the female subjects to commit vandalism.

Examination of the respondent's desire to vandalize each of the houses showed that on six of the eight stimuli, only twenty percent of subjects indicated a desire to vandalize of five or more on the seven point scale. For Images 5 and 8, 35% and 44% respectively of the subjects indicated a desire to vandalize of five or greater. Twenty-five percent of subjects indicated the highest possible desire to vandalize the house in Image 8 (the poorly maintained house containing graffiti).

An "overall desire to vandalize" score was calculated for each respondent by summing across the scores obtained for each of the eight images. The possible scores thus ranged from 8 to 64, although the actual range of obtained scores varied from 8 to 42, with 15% of respondents obtaining the lowest possible

score of 8. The mean overall score was 20, with a median of 19 and a mode of 8.

Pearson product-moment correlations were calculated to intercorrelate the desire to vandalize scores for each of the eight images. These correlations ranged from $r=-.02$ to $r=.78$ and can be seen in Table 3. A correlation matrix was also calculated for the overall desire to vandalize score with the desire to vandalize each specific house depicted in the stimuli. Desire to vandalize Image 8 (the rundown property) correlated moderately with overall desire to vandalize ($r=.50$). All other correlations between total desire to vandalize and each of the Images were positive and ranged from $r=.61$ to $r=.77$. See Table 3 for the complete correlation matrix.

To examine if age of the subject related to the desire to vandalize the simulated buildings, a *t*-test was performed. This t-test comparing the overall desire to vandalize scores for 15 year old and 18 year old subjects proved nonsignificant, indicating the absence of age effects.

Hypothesis One

This hypothesis stated that a house with personalizing features and landscaping will communicate a sense of territoriality and should therefore not be vandalized. Images 1, 6 and 7 contain

Table 3

Desire to Vandalize a Specific Image Correlated with Total Desire to Vandalize

Image #	1	2	3	4	5	6	7	8	Total
1	-	.57	.26	.53	.22	.43	.46	.09	.61
2	--		.54	.48	.45	.32	.43	.14	.69
3	---			.64	.52	.60	.55	.20	.77
4	----				.35	.60	.54	-02	.71
5	-----					.32	.35	.53	.71
6	------						.78	.22	.76
7	-------							.24	.77
8	--------								.50

these features. For Image 1, 55% (n=40) stated that they had absolutely no desire to vandalize the house. For Image 6, 68% (n=49) stated that they no desire to vandalize the dwelling. For Image 7, 68% (n=49) also indicated no desire to vandalize the house.

Hypothesis Two

This hypothesis stated that a house that is not well maintained will attract vandalism. Image 8 represents a stimulus house that is both dilapidated and already suffering vandalism damage. Thirty-two percent (n=23) of the subjects stated that the had no desire to vandalize this house, but 25% of the subjects (n=18) expressed a very strong desire to cause vandalism damage to the house. The modelling effect of present vandalism increases the likelihood of subsequent vandalism damage (Beaulieu, 1981, p.144).

Hypothesis Three

This hypothesis was a test of aesthetic theory which stated that the type of vandalism damage that would be performed would involve destruction that might provide novelty and stimulation for the vandal. This theory posits that breaking glass and graffiti offers an outlet for the vandal's desire to create interesting patterns and sounds from intentional destruction.

The majority of responses to what parts of the house would be damaged were on Images 5 and 8. For Image 5, there were a large number of respondents (n=44) that listed a particular feature, most commonly the "No Trespassing" sign. For Image 8, an even larger number of subjects indicated parts of the house chosen for damage (n=58). The particular parts of the house that were listed were "add to graffiti" (n=15) and "breaking windows" (n=11). There were also many responses indicating a desire to damage the building's walls (n=14). It is probable that these subjects were also indicating a desire to engage in some form of graffiti writing.

Discussion

The present data lend support for the ecological validity of simulation methods applied to vandalism research. The computer produced images elicited desire on the part of the subjects to vandalize dwellings that have either existing vandalism damage or have signage that provokes negative reactions. This pattern is commonly observed in reports of vandalism in real environments. One of the most commonly observed relationships in vandalism research is the finding that existing damage serves as a model to stimulate additional vandalism. The vandalism damage may serve a suggestion of what specific actions may be performed on the environment or may signal to the vandal that damage is acceptable, or at least safely accomplished in this particular setting. The literature is unclear whether the existing damage will stimulate the potential vandal into action without an existing impulse to engage in vandalism, or whether it merely serves to channel existing desires into a specific course of action in a given setting.

Using subjects from the same age group that constitutes the bulk of arrested vandals, it was seen that vandalism is not a random, senseless activity. The present pattern of data supports contemporary theorizing on vandalism stressing that vandalism is a predicable behaviour, following the same scientific principles as other responses. The simulations demonstrated

that well maintained dwellings containing landscaping details and personalizing features will communicate a sense of propriety and territoriality that serves to resist vandalism (Newman, 1972). The present simulations do not permit us to get an exact measure of the relative weights of different types of landscaping and personalizing features, but research is presently being conducted to sharpen our knowledge of these matters.

The finding of greater propensity for males to engage in vandalism may also indicate the ecological validity of the present simulations. Research on both arrested and convicted vandals indicates that males are more likely to engage in vandalism than are females (Schnell et al., 1973; Whittingham, 1975).

Of particular interest was the observation that a sign reading "No Trespassing" was seen to <u>increase</u> rather than decrease vandalism. This paradoxical effect has frequently been reported in the literature on littering behaviour (Wiesenthal, 1984). The general finding is that stern messages, specially those conveying a threat (eg. "Violators will be arrested and/or fined $500", "You must NOT litter!") increase littering over control conditions. Signs that are politely worded and clearly communicate the desired behaviour are considerably more effective in controlling environmental problems. The theoretical explanation for this effect is contained in Brehm's (1966) reactance theory. Reactance is the psychological attempt to

regain control in settings where the individual perceives some limitation or restriction on their freedom of action. Reactance is often a state of high arousal in which control or regaining freedom is an overriding concern and anger and hostility are the likely responses (Baum, Fisher, and Singer, 1985, p.474). Subjects may therefore be more likely to trespass precisely because a sign forbids it.

The present research offers the prospect of simulations aiding architects and designers select various landscape schemes, and personalizing features to make their designs individualistic. The simulations of these designs can easily be accomplished by inexpensive, commercially available microcomputer software. The introduction of microcomputers places sophisticated design tools in the hands of the architect and planner and allows them to refine their designs by testing them on potential users of the environment.

Concluding Remarks

This research has examined the social and environmental factors related to residential vandalism employing both field and simulation methodologies. From this research some suggestions can be offered to the design professions. It was seen from Study One that vandalism was more likely to occur in homes that are further from neighbouring dwellings and located near schools and/or major thoroughfares. This suggests that both lack surveillance opportunities and the presence of children/ adolescents are major determinants of vandalism. Since vandalism has been demonstrated to peak in the 15-16 year age group, the presence of schools, walkways, and major thoroughfares, tend to attract and concentrate these children. The lack of surveillance may communicate that vandalism may be committed with minimal fear of apprehension. Surprisingly, this research did not replicate previous data indicating the presence of fences, adequate outdoor lighting and gardens may inhibit the expression of vandalism. Possible reasons for this might be that lights were not turned on nor gates closed. In the second study, the utility and validity of simulation research was established. By means of microcomputer produced illustrations, a Victorian house (similar to many in downtown Toronto) had landscaping, maintenance and graffiti damage systematically varied. The simulation research replicated Newman's concepts that fencing and landscaping communicate territoriality and a sense of propriety.

It also replicated that finding that young males seem more likely than females to engage in vandalism and for existing vandalism damage to serve as a stimuli for additional vandalism. Signage may have the opposite effect than what is intended, when "No Trespassing" signs serve to increase rather than decrease existing vandalism. The use of simulation methodologies presents itself as a useful aid in pretesting architectual and planning decisions. If simulated houses/streetscapes were presented to groups of adolescents, the subjects' responses would be valuable aids in considering alternative designs that offer the promise of lessened vandalism. By testing designs on the potential users (and abusers) of the environment, long term maintenance and petty crime could be reduced.

Inspite of national survey data suggesting the experience of vandalism is high and perceived to be on the increase, the obtained level of vandalism in several Toronto and suburban neighbourhoods was lower than expected. Vandalism was very commonly reported, in the present survey, to have been directed against automobiles rather than residences. It is important to note that most previous research on vandalism has been primarily conducted in the institutional setting of schools and publicly sponsored high-rise apartment buildings, while the present study focussed only on single family detached houses. There are important differences in the social characteristics of those living in public housing and homeowners - income, ethnicity, employment history, family stability, roots in the community,

etc. Past vandalism research may have obtained more striking data because of these social, environmental and demographic differences.

The present data offers suggestions that vandalism must be viewed in broad perspective encompassing both the social nature of the community as well as the environmental aspects of the setting. Simulation methodology is proposed as an ideal, cost-effect technique to forecast vandalism and take corrective steps to reduce and/or prevent vandalism during the design and planning phases of community development.

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APPENDIX A

Vandalism - Neighbourhood Attributes Scale
Version 1.0

Address: _____

_____

_____

Interviewer: _____

Date: _____

Code Number: _____

Person Interviewed: _____(M,F)

Homeowner(Y/N) _____

Have you ever had your house or property vandalized since moving to this house? Y/N.
What was the nature of the vandalism? (what happened, extent of vandalism, cost. no. of times, how long ago?) _____

_____

Why do you think your premises or possessions were vandalized?

_____

What was the approximate cost of the vandalism damage? _____

Did you contact your insurance company to file a claim? _____

Were you previously acquainted with the vandals? _____

Were you or anyone else home at the time of the incident? _____

Did you or the police apprehend the vandals? _____

What was the day of the week? _____

Do you recall the time of day? _____

Was it during the morning, afternoon or night? _____

Have you ever called the police because you knew or suspected that someone had vandalised, or attempted to vandalise your own residence or a neighbour's residence?

Yes - Own _____

Yes - Neighbour _____

No _____

Could you give me a brief description of the incident (extent of vandalism, type of damage, cost)

_____

_____

Other occasions to phone police? _____

If yes, how long ago was this incident? _____

How long do you plan to live in this dwelling? _____

How many years have you lived in this residence? _____

Is there a Neighbour Watch operating in your neighbourhood?

Yes _____ No _____

Have you ever attended a Neighbourhood Watch (Block Parent Meeting)?

Yes _____ No _____

Which of the following changes to your home have you made since the vandalism?

A) Increase insurance coverage _____

B) Planted trees, shurbs _____

C) Added exterior lighting _____

D) Painted the exterior _____

E) Erected name or address signs _____

F) Planted flowers _____

G) Installed locks/alarms _____

H) Built an addition _____

I) Planted flower/vegetable garden _____

J) Bought a dog _____

K) Marked valuables with an engraver _____

L) Posted Neighbourhood Watch signs _____

M) Cut down trees/shrubs that obstruct the view _____

N) Installed fences _____

O) Other (specify) _____

Which of the following changes has your family (or others) made to your home since you moved in?

A) Erected a fence _____

B) Planted trees, shrubs _____

C) Added exterior lighting

D) Painted the exterior _____

E) Erected names/address signs _____

F) Planted flowers/vegetables _____

G) Installed locks/alarms _____

H) Built an addition _____

I) Modified garage _____

J) Acquired a dog _____

K) Cut down trees/shrubs _____

L) Posted Neighbourhood Watch/Block Parent signs _____

Please identify the houses of neighbours you:

A) Recognize by sight N=___

B) Have spoken to casually N=___

C) Known on a first name basis N=___

D) Borrow from or lend to (e.g. books, tools, food, etc.) N=___

E) Would ask for help in an emergency N=___

F) Have inside your home for a social visit N=___

G) Think could tell if someone in your yard was a trespasser rather than family member N=___

H) Consider to be intimate friends N=___

I) Have contact with only outside of block N=___

J) Have asked to watch your home while you were away N=___

K) Know best (list 3 separate houses if possible) N=___

L) Have houses visible from your front porch N=___

How many of your neighbour's vehicles do you recognize? N=___

How many children (under 18 years) live on the block? N=___

How many person(s) on this block/in this apt. building could you arrange to have a parcel delivered? N=___

How often do you visit or talk to your immediate neighbour?

Daily or more frequently _____

Several times a week _____

From time to time _____

Seldom _____

Never _____

Check any of the following behaviour changes you have since experiencing vandalism

A) Keep car in garage _____

B) Don't leave unattended objects outside _____

C) Lock doors, windows more often _____

D) Pull shades, draw curtains _____

E) Talk to neighbours more often _____

F) Stay home more often _____

G) Watch the street more often _____

H) Report to police whenever suspicious _____

I) Ask the neighbours to watch the house more _____

J) Attended Neighbourhood Watch meetings _____

K) Notice strangers in the neighbourhood more _____

L) Other _____

M) Left lights on when you go out/indoor outdoor _____

N) Installed outdoor lighting _____

O) Leave radio on when out _____

Check any of the following feelings you experienced after the vandalism which you think were caused by the vandalism

A) Anger _____

B) Anxiety _____

C) Sleep disturbances _____

D) Physical Illness _____

E) Suspicion toward strangers _____

F) Anger at neighbours _____

G) Feelings of powerlessness _____

H) Fear of being alone _____

I) Suspicion of neighbourhood children/teenagers/adults _____

J) Fear of entering home or certain rooms in home _____

K) Other _____

LIST ALL PERSONS IN HOME

		Age and Years		Waking Hrs. Spent Home Weekday
	Sex	A = 0-5.9	F = 30-39.9	
	Male = 1	B = 6-11.9	G = 40-49.9	
Respondent	Female = 2	C = 12-17.9	H = 50 - 59.9	
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

How many hrs/wk is home unoccupied?

Is this residence on a

Major artery . . . . . (1)

Side street . . . . . (2)

Dead end street . . . . . (3)

Open country . . . . . (4)

Incomplete development (homes still under construction or unoccupied). . . . . (5)

Inner city . . . . . (6)

Suburb . . . . . (7)

Type of dwelling:

Single house _____

Semi-detached _____

Row house _____

Duplex _____

Apt, triplex, multidwelling _____

Other _____ (specify)

RESIDENCE (HOME ONLY)

1. Number of stories _____
2. Which floor do you occupy? _____
3. Garage (present or absent) _____
4. Is this a corner lot adjacent to a corner lot _____
5. Describe residence mix _____

6. Noise level in neighbourhood _____ (High Medium Low)

7. Noon vehicle traffic level _____

8. Thru street or cul-de-sac _____

9. Is there a dog on property _____

10. Presence of group home/boarding house in neighbourhood _____

11. Quality of street lights on neighbourhood _____

Similarity of houses on block	Very similar	(1)	(2)	(3)	(4)	(5)
Quantity of personalizing details on house on street	Very many	(1)	(2)	(3)	(4)	(5)

Lawn Appearance: Fences . . . . . (1)

Hedges . . . . . (2)

Flowers . . . . . (3)

Statuary . . . . . (4)

Rock garden . . . . . (5)

Windmills . . . . . (6)

	Yard	House
Sidewalks in front of home	P/A	P/A
Name Plate/Sign	P/A	P/A

Other personalizing touches . . . . . .

FRONT SURVEILLANCE

How far from the street is the front of the dwelling?

Is the main outside door in the front of the dwelling?
Considering the view of the house obtained from the street or the sidewalk in front of the house, code the following if they pose an

obstruction as far as the front door or window is concerned: Is this a slight obstruction, a fairly large one, or a total obstruction? (That is, can it camouflage a potential intruder). Code all that apply.

	Feature Present	Slight Obstruction	Large Obstruction	Total Obstruction
a) Wall	_____	_____	_____	_____
b) Fence	_____	_____	_____	_____
c) Hedge	_____	_____	_____	_____
d) Bushes	_____	_____	_____	_____
e) Trees	_____	_____	_____	_____
f) Garage or other building .	_____	_____	_____	_____
g) Landscaping: shrubs, flowers, rock, garden, trees	_____	_____	_____	_____

h) Other (specify) _____

Describe surveillability of front from residence across street:

(1) No residence across the street

(2) Excellent

(3) Slight Obstruction

(4) Fairly large obstruction

(5) Total obstruction, no surveillance opportunity at all.

(6) Other

(7) D.K.

(8) INAP

BACK SURVEILLANCE

Does the R's residence have: (Code all that apply)

	Yes	No	INAP
Back door	____	____	____
Back basement window(s)	____	____	____
Other back window(s)	____	____	____

If none of the above, go to Q#
How far is the next residence behind this dwelling? _____

Does the dwelling behind this residence have surveillance ponts with respect to this dwelling? (i.e. bedroom, hall windows, etc.)

(1) Yes

(2) No (go to next question)

(3) D.K.

(4) INAP

	Slight Obstruction	Fairly Large Obstruction	Total Obstruction	INAP
a) Wall	(1)	(2)	(3)	(4)
b) Fence	(1)	(2)	(3)	(4)
c) Hedge	(1)	(2)	(3)	(4)
d) Bushes, Trees	(1)	(2)	(3)	(4)
e) Garage or other buildings	(1)	(2)	(3)	(4)
f) Landscaping	(1)	(2)	(3)	(4)
g) Hidden recesses.	(1)	(2)	(3)	(4)
h) Other	(1)	(2)	(3)	(4)

No surveillability:

(1) No residence behind dwelling

(2) Excellent

(3) Slight obstruction

(4) Fairly large observation

(5) Total obstruction, no surveillance opportunity at all

(6) Other (specify)

(7) D.K.

(8) INAP

	Yes	No	D.K.	INAP
(a) stores	(1)	(2)	(8)	(9)
(b) shopping centre	(1)	(2)	(8)	(9)
(c) laneway or alley	(1)	(2)	(8)	(9)
(d) ravine	(1)	(2)	(8)	(9)
(e) park	(1)	(2)	(8)	(9)
(f) school	(1)	(2)	(8)	(9)
(g) factory	(1)	(2)	(8)	(9)
(h) highway or major throughfare	(1)	(2)	(8)	(9)
(i) church	(1)	(2)	(8)	(9)
(j) theatre	(1)	(2)	(8)	(9)
(k) recreational facilities . .	(1)	(2)	(8)	(9)

Side Surveillance: To the left side facing residence

Does the residence have

	Yes	No	INAP
Left side doors	____	____	____
Left side basement windows	____	____	____
Other left side windows	____	____	____

If none of the above, go to .....

How far is the next residence? _____

Describe dwelling next door (to the left) have surveillance points with respect to the dwelling? (i.e. bedroom, hall windows, etc.)

(1) Yes

(2) No

(3) D.K.

Code all that applies

	Slight Obstruction	Family Large Obstruction	Total Obstruction	INAP
a) Wall	_____	_____	_____	_____
b) Fence	_____	_____	_____	_____
c) Hedge	_____	_____	_____	_____
d) Bushes	_____	_____	_____	_____
e) Trees	_____	_____	_____	_____
f) Garage	_____	_____	_____	_____
g) Landscaping	_____	_____	_____	_____

h) Other _____

Side Surveillance: To the right side facing residence

Does the residence have

	Yes	No	INAP
Left side doors	_____	_____	_____
Left side basement windows	_____	_____	_____
Other left side windows	_____	_____	_____

If none of the above, go to .....

How far is the next residence? _____

Describe dwelling next door (to the right) have surveillance points with respect to the dwelling? (i.e. bedroom, hall windows, etc.)

(1) Yes

(2) No

(3) D.K.

Code all that applies

	Slight Obstruction	Family Large Obstruction	Total Obstruction	INAP
a) Wall	_____	_____	_____	_____
b) Fence	_____	_____	_____	_____
c) Hedge	_____	_____	_____	_____
d) Bushes	_____	_____	_____	_____
e) Trees	_____	_____	_____	_____
f) Garage	_____	_____	_____	_____
g) Landscaping	_____	_____	_____	_____
h) Other _____				

Quality of house maintenance:

Excellent - looks new . . . . . (1)

Good . . . . . (2)

Fair . . . . . (3)

Poor . . . . . (4)

Quality of yard maintenance:

Excellent (fertilized, well mowed, no weeds) . . (1)

Good . . . . . (2)

Fair . . . . . (3)

Poor, bald patches, litter . . . . . (4)

Presence or **absence** at residence:

Lawn mower (P/A) . . . . . (1)

Toys left out (P/A) . . . . . (2)

Lawn sprinklers, lines (P/A) . . . . . (3)

Full trash cans (P/A) . . . . . (4)

Parked cars on driveway (P/A) . (If P, N =) . . (5)

Tools (P/A) . . . . . (6)

Garage door open/closed . . . . . (6)

Trash, litter in yard (P/A) . . . . . (1)

Newspaper, flyers in yard (P/A) . . . . . (2)

Outdoor lights on during day (P/A) . . . . . (3)

Unmowed lawn, unshoveled walks (P/A) . . . . . (4)

Cars seen parked near house (P/A). (If P, N =). (5)

TRAFFIC COUNT FOR 15 MINUTES (From 6-8 PM)

Starting time _____ Ending time _____

Commercial car, van, truck _____

Private car, truck _____

Motor cycles _____

Bicycles _____

Child Pedestrians _____

Teenage Pedestrians _____

Adult Pedestrians _____

Number of adjacent houses seen: (Observer's back is to the target house):

ON BLOCK, to the right _____

ON BLOCK, to the left _____

ON BLOCK, across the street _____

OFF BLOCK, to the right _____

OFF BLOCK, to the left _____

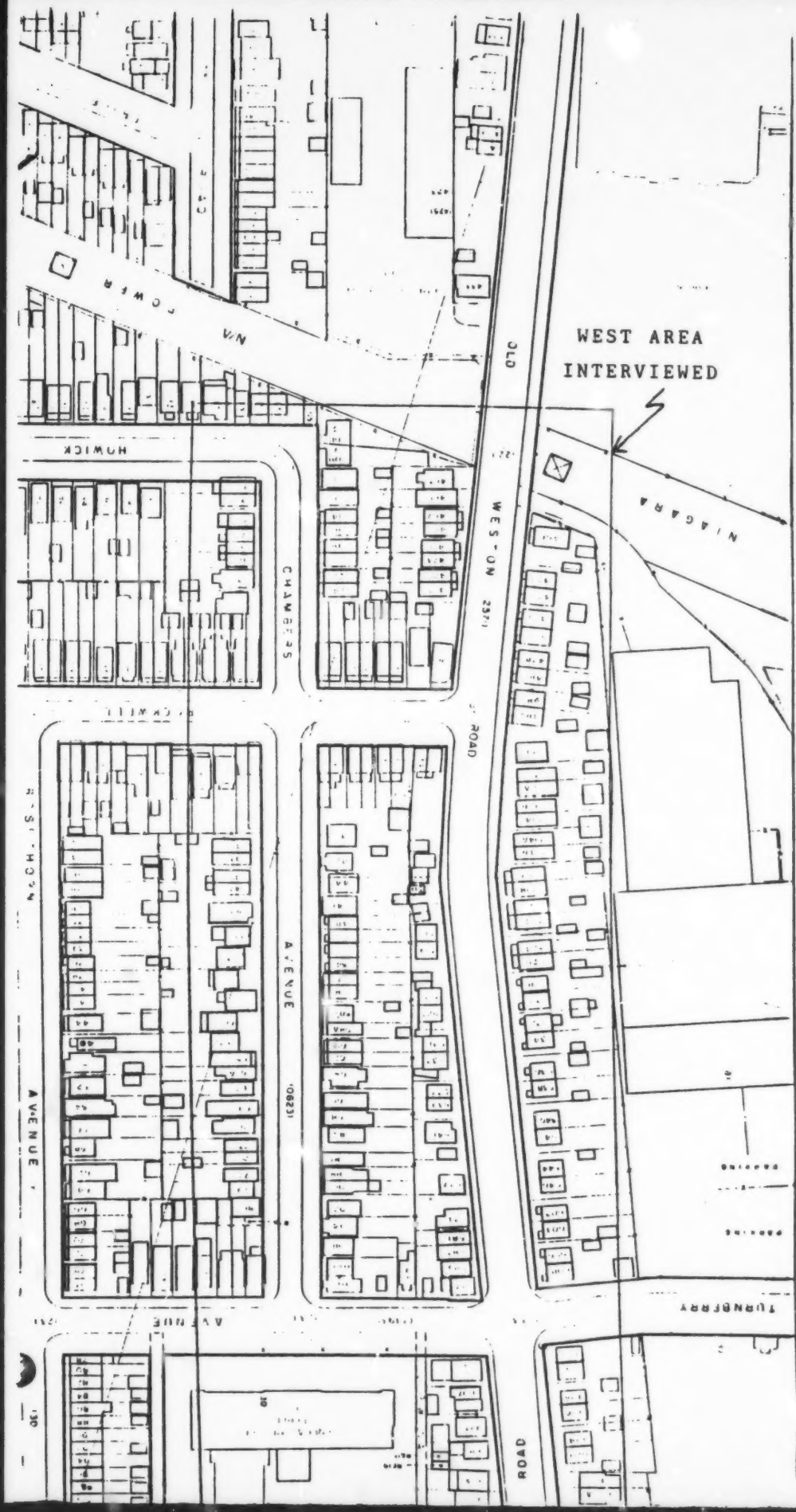
OFF BLOCK, across the street _____

ACTUAL BARRIER PRESENT BETWEEN:

	Wood	Stone	Metal	Other	None
Yard and street	(1)	(2)	(3)	(4)	(5)
Yard and house	(1)	(2)	(3)	(4)	(5)
Yard and right yard	(1)	(2)	(3)	(4)	(5)
Yard and side yard	(1)	(2)	(3)	(4)	(5)

	Open	Closed	?
Gate:	(1)	(2)	(3)

Alarm system visible	Yes	No	?
	(1)	(2)	(3)



LEGEND

[illegible]	[illegible]
[illegible] COORDINATED [illegible]	
[illegible] NUMBER	[illegible]
[illegible] ASSESSED	N/A
FEDERAL LANDS	F
PROVINCIAL LANDS	P
CITY LANDS, METRO LANDS	C,M
HARBOUR COMMISSION LANDS	H
PROPERTY BOUNDARY	
MUNICIPAL NUMBERS 40 LEE AVE 1 CH MAIN ST., 701 MAIN ST - CONCESSION NUMBER	LEE AVE, MAIN ST
ROAD, DRIVEWAY PAVED	
ROAD, DRIVEWAY, PATH UNPAVED	
RAILWAY TRACK	
RIGHT OF WAY	R/A
BUILDING	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	1 840 000
[illegible]	

NOTE
[illegible] THE MAP IS NOT TO BE USED TO DETER[illegible] THE PRECISE RELATIONSHIP BETWEEN THE BUILDING AND THE PROPERTY LINES.

NOTE
THE [illegible] IS TO BE REFERENCED WITH THE ORIGINAL ATTACHED PLAN OF THE CITY SURVEYOR'S [illegible] TORONTO.

METRIC
MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND MAY BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SCALE RATIO 1:2000

[illegible] AUG 85

OLS

R.H. CREWE CITY SURVEYOR
[illegible] OF PUBLIC WORKS

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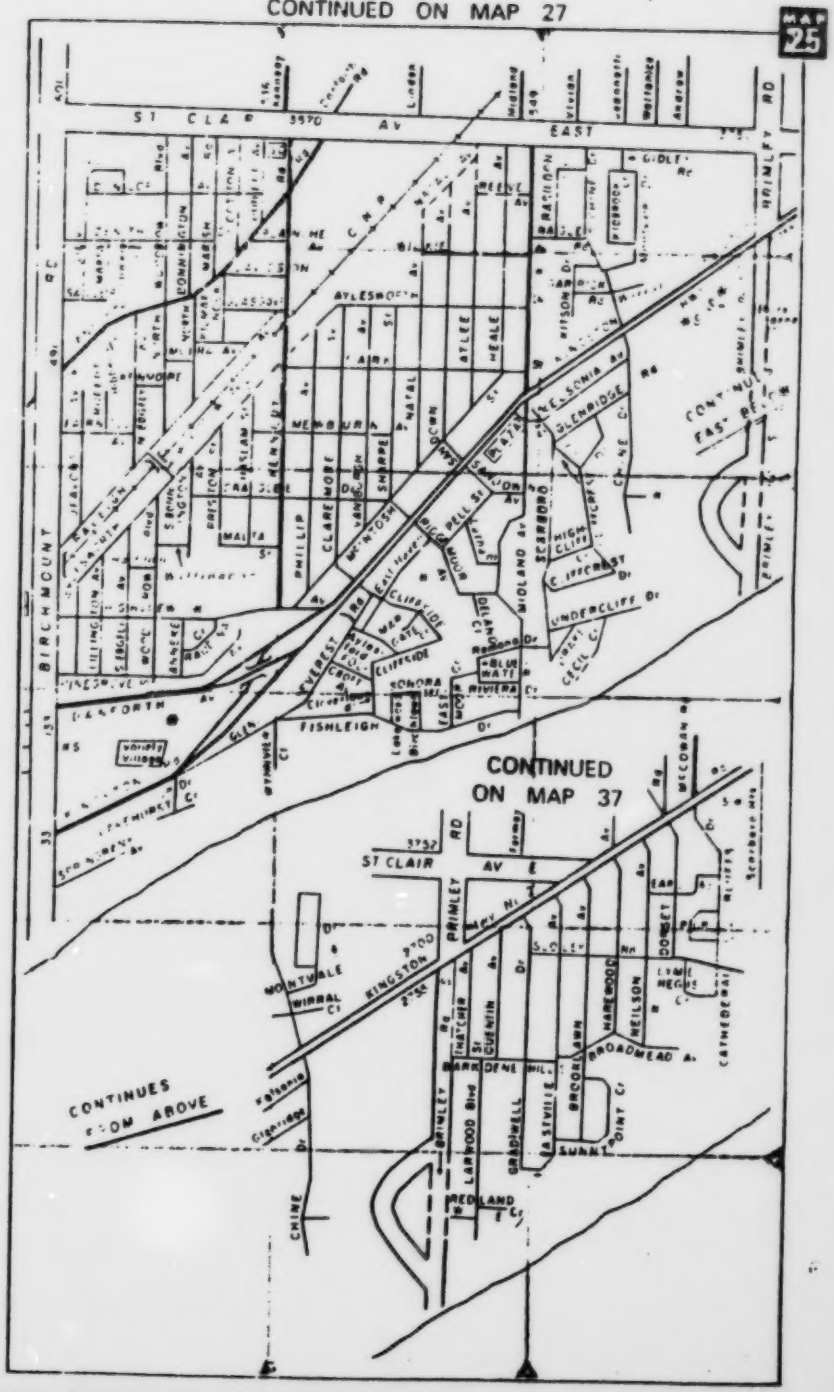
MAP 25
CONTINUED ON MAP 27
CONTINUED ON MAP 15
ST. CLAIR AV EAST
DANFORTH AV
GERRARD ST East
QUEEN ST E.
KINGSTON
MACK
MILNE
ALBION
LAKE ONTARIO
BIRCHMOUNT RD
VICTORIA PARK
CHINE


CONTINUED ON MAP 27
MAP 25
ST CLAIR AV EAST
CONTINUED ON MAP 37
CONTINUES FROM ABOVE
KINGSTON
CHINE

APPENDIX B

SEX ____

AGE____

THIS STUDY IS BASED ON THE ENVIRONMENTAL ASPECTS RELATED TO VANDALISM. YOU WILL BE PRESENTED WITH A SERIES OF COMPUTER ENHANCED DRAWINGS OF HOMES THAT CAN BE FOUND IN TORONTO.

PLEASE LOOK AT EACH OF THE DRAWINGS IN THE WAY THAT THEY ARE PRESENTED TO YOU. WHEN LOOKING AT EACH OF THE IMAGES, DECIDE ON HOW DESIRABLE IT WOULD BE TO DAMAGE THIS HOUSE IF THE OPPORTUNITY AROSE. THE SCALE RUNS FROM 1 TO 7 PLEASE CIRCLE THE NUMBER THAT CORRESPONDS TO YOUR REACTION AT EACH OF THE IMAGES. AFTER YOU HAVE STATED YOUR REACTION PLEASE DESCRIBE WHAT PARTS OF THE HOUSE YOU WOULD DAMAGE.

NO DESIRE STRONG DESIRE

(1) 1 2 3 4 5 6 7

PARTS _____

(2) 1 2 3 4 5 6 7

PARTS _____

(3) 1 2 3 4 5 6 7

PARTS _____

(4) 1 2 3 4 5 6 7

PARTS _____

(5) 1 2 3 4 5 6 7

PARTS _____

(6) 1 2 3 4 5 6 7

PARTS _____

(7) 1 2 3 4 5 6 7

PARTS _____

(8) 1 2 3 4 5 6 7

PARTS _____

IMAGE 1

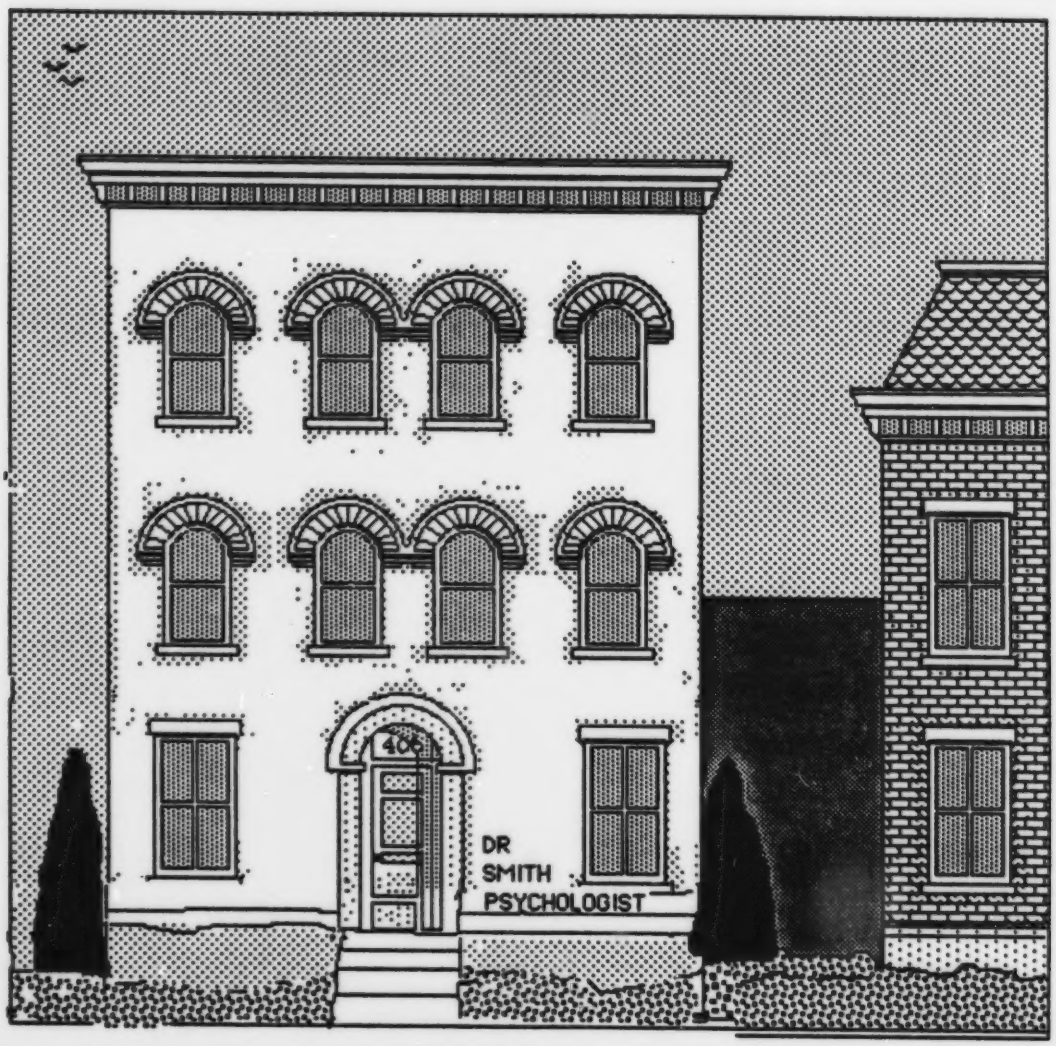


IMAGE 2

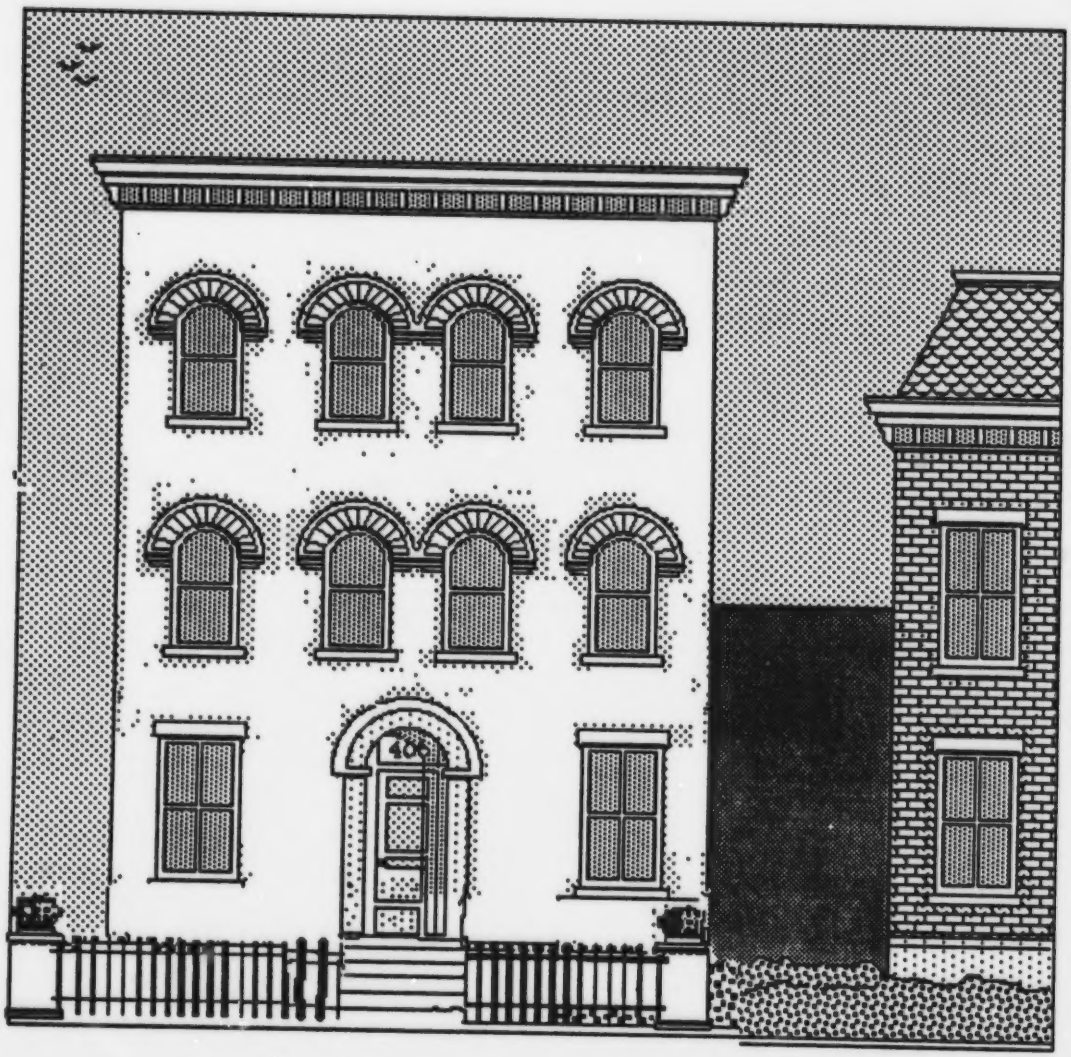


IMAGE 3

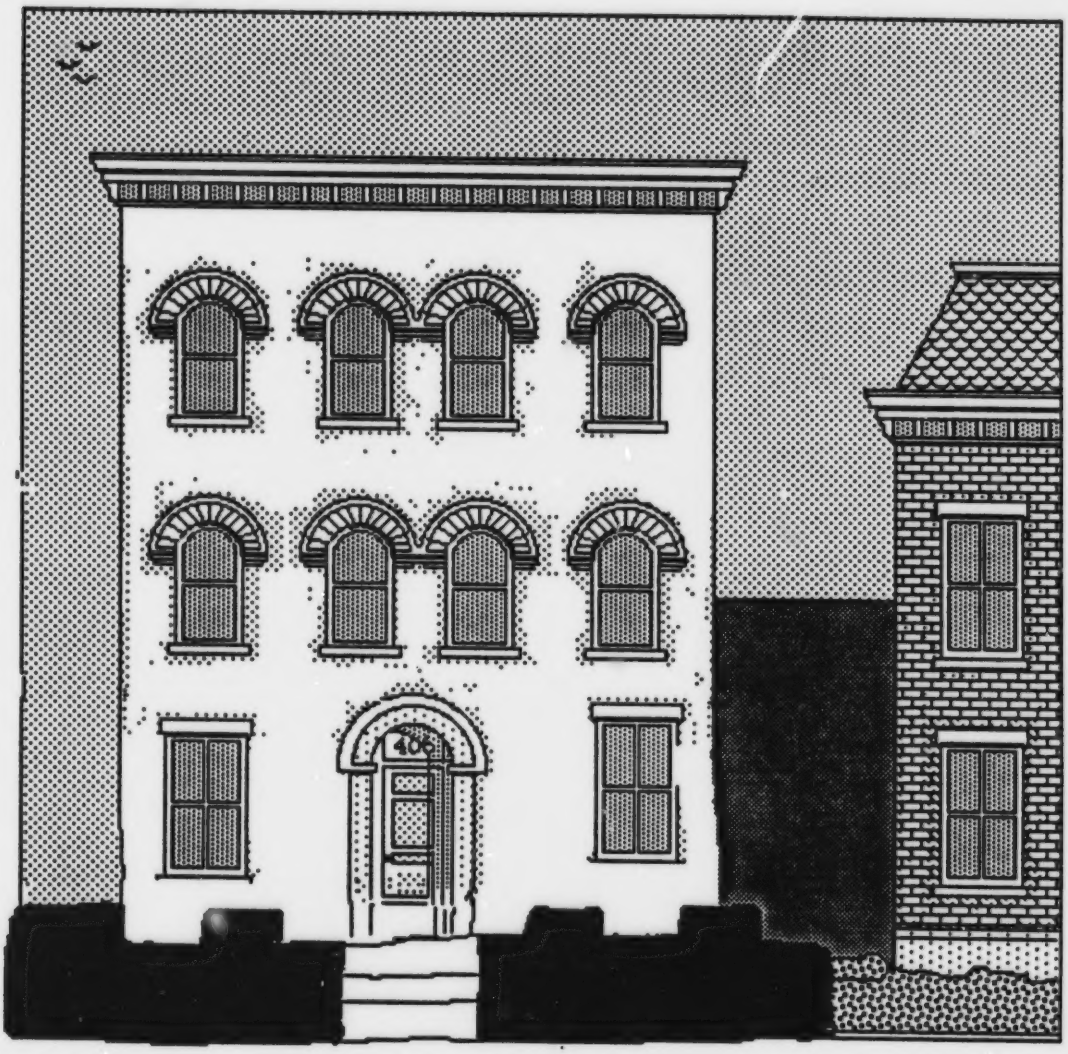


IMAGE 4

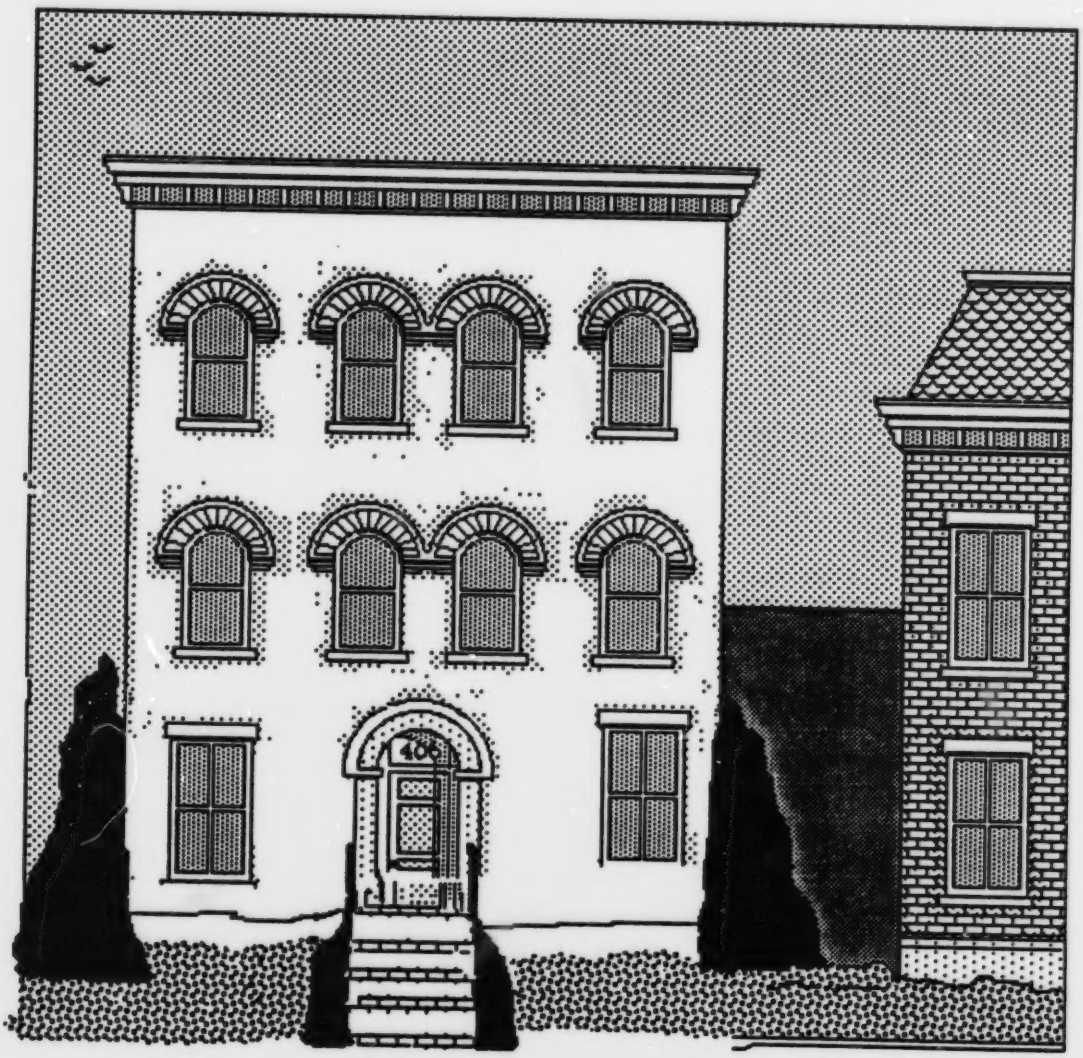


IMAGE 5

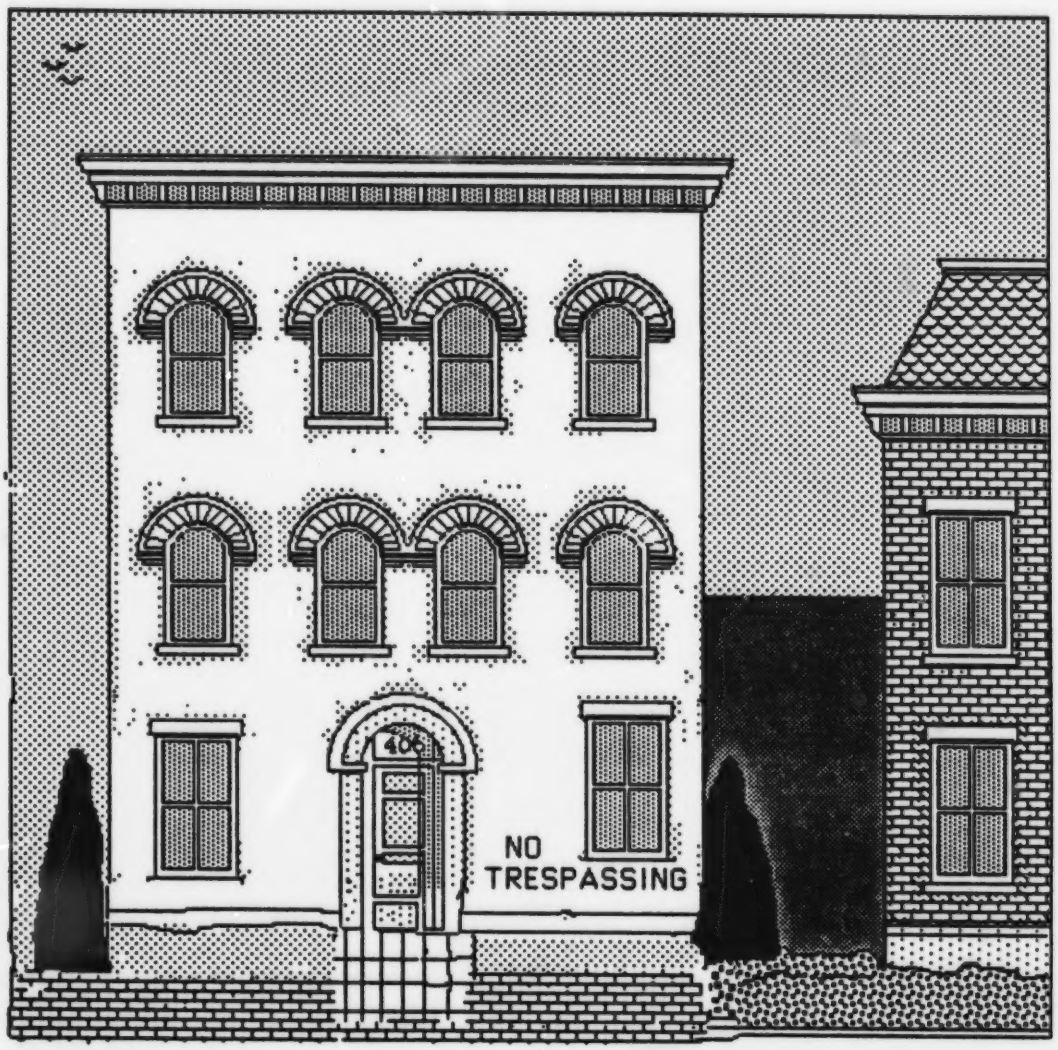


IMAGE 6

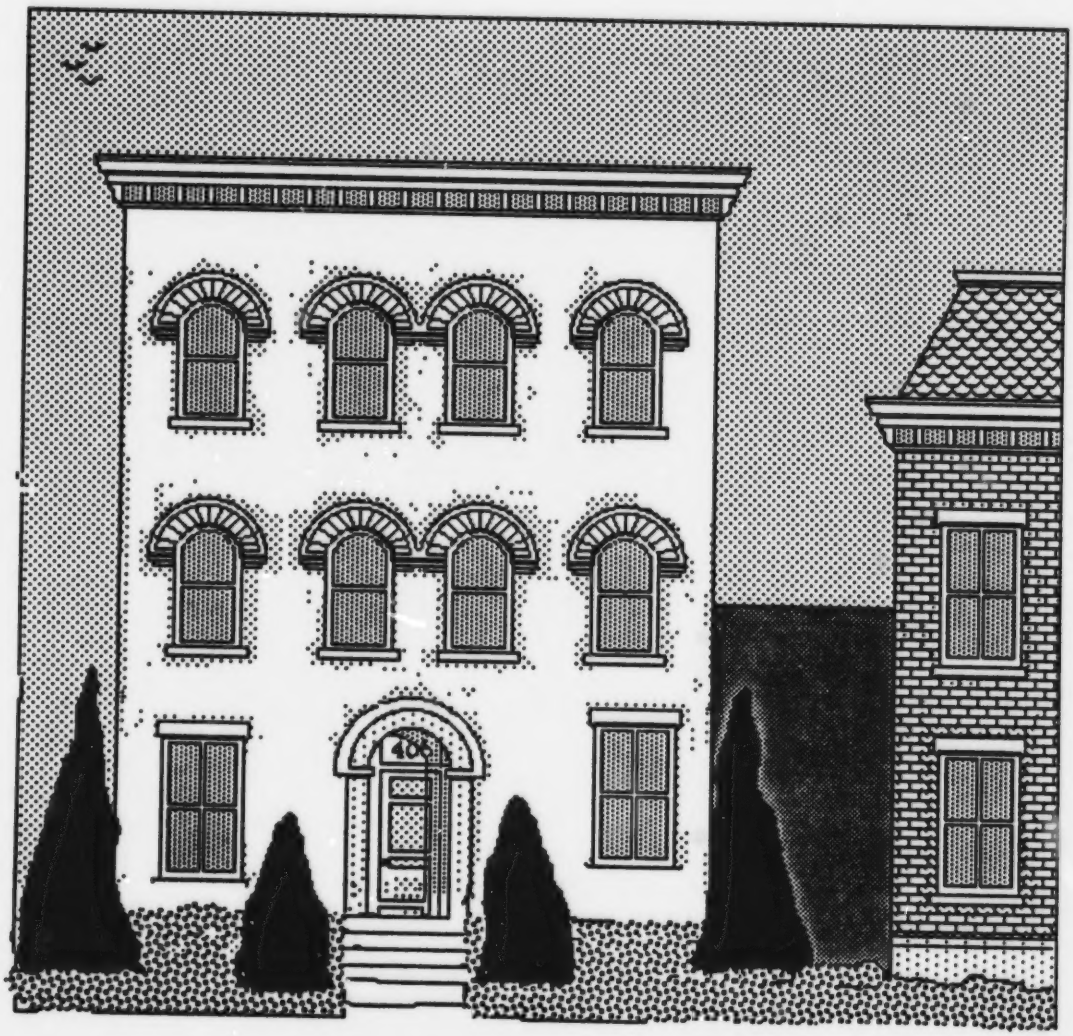


IMAGE 7

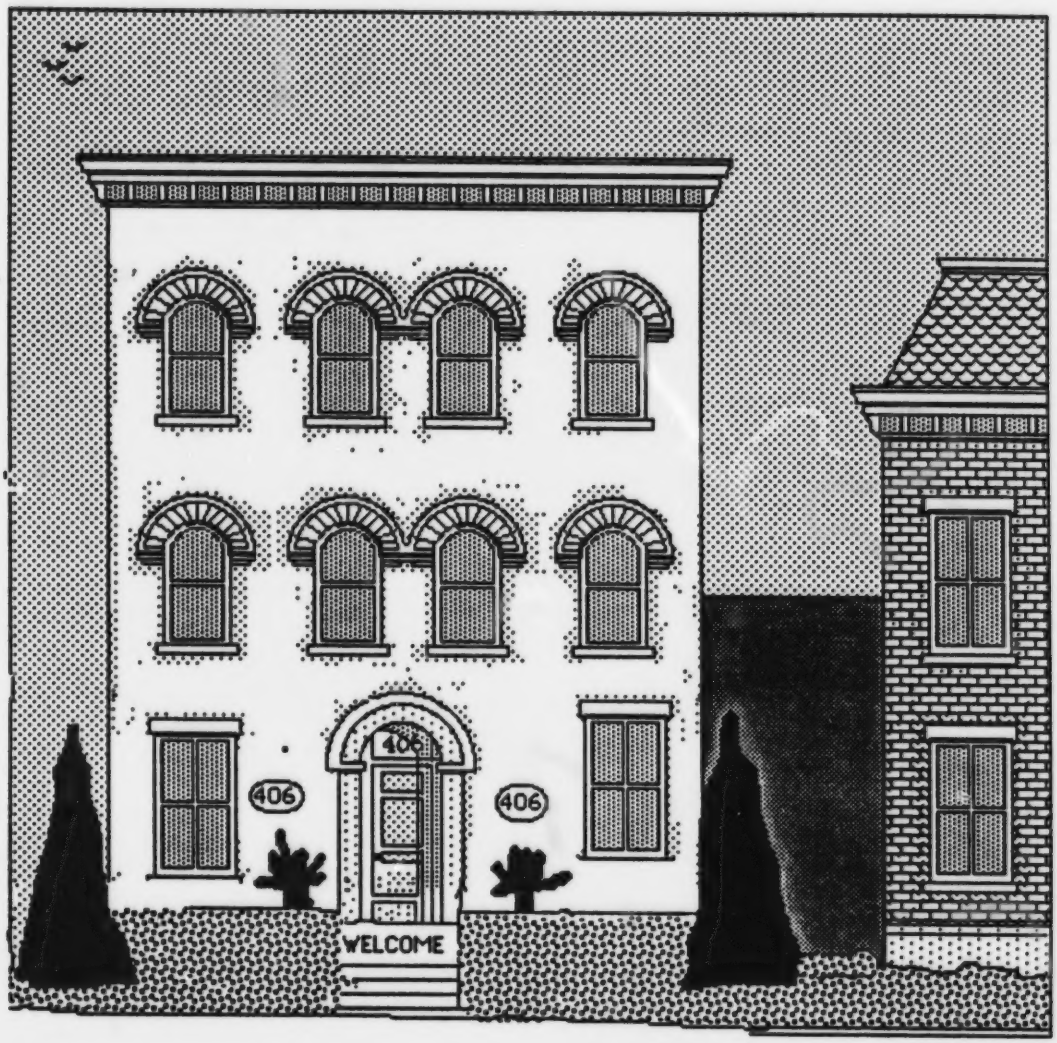
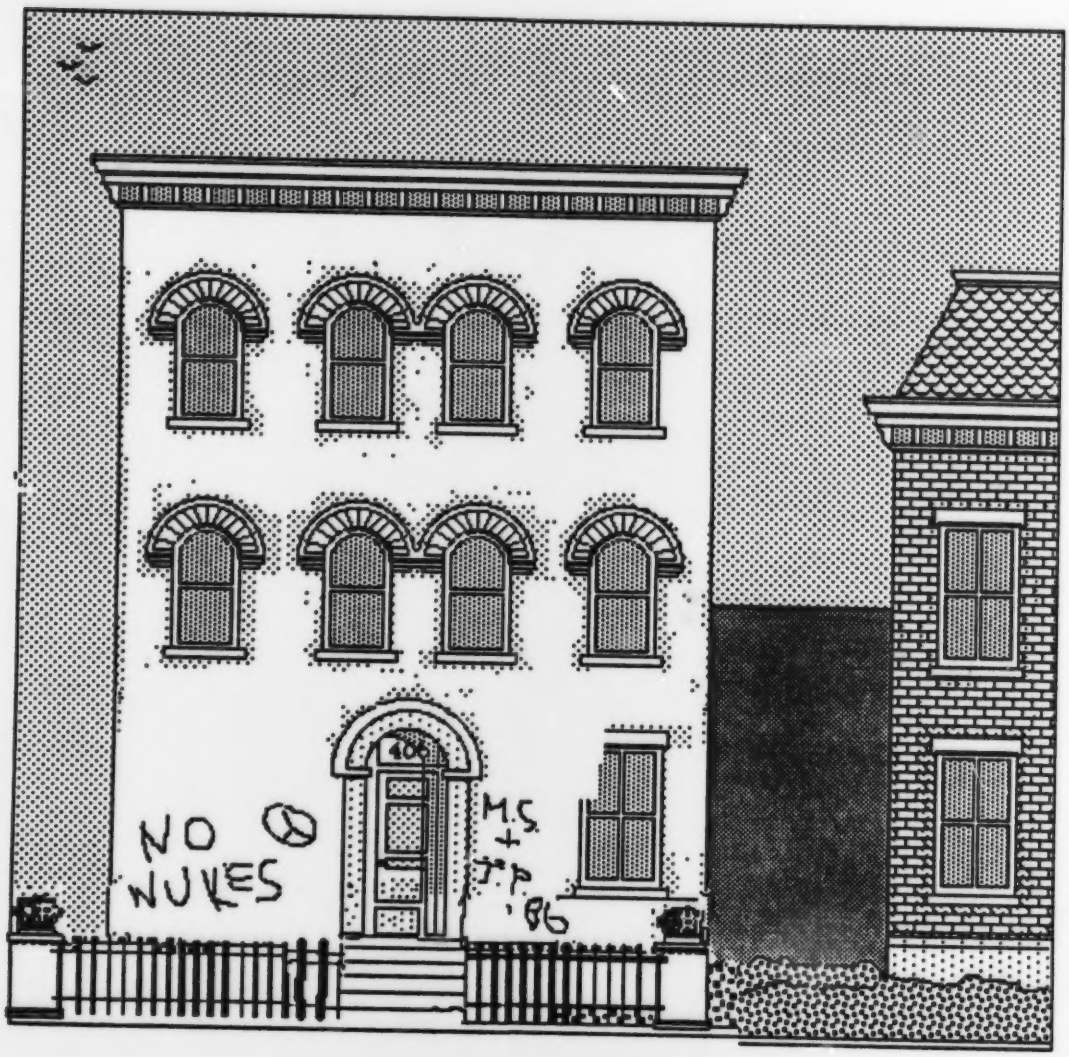



IMAGE 8